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Serial compounds and trace conditioning procedures in the Kamin blocking paradigm.

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SERIAL COMPOUNDS AND
TRACE CONDITIONING PROCEDURES
IN THE KAMIN BLOCKING PARADIGM

A Dissertation Presented

By

Elizabeth Adams Kohler

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 1979

Psychology



Elizabeth Adams Kohler

1979

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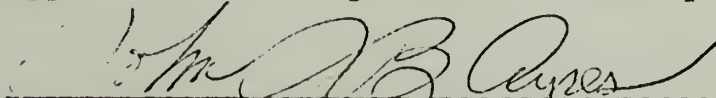
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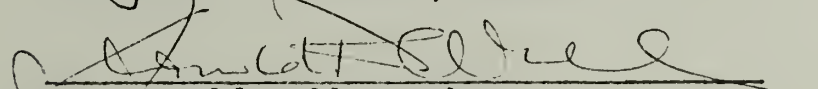
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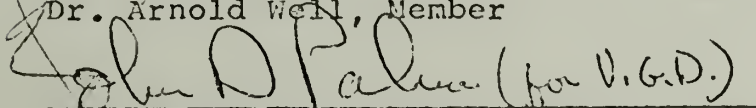
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ABSTRACT

Serial Compounds and Trace Conditioning
Procedures in the Kamin Blocking Paradigm
(May 1979)

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The phenomenon of blocking in a conditioned suppression situation was studied using serial as well as simultaneous compounds in Pavlovian trace conditioning procedures. Blocking experimental groups were first given trace conditioning trials with a 2-sec stimulus (A) presented at least 60 sec before an electric shock US. Following this, both experimental and control groups received trials with a 2-sec compound stimulus (AB) presented at least 60 sec before the US. For some groups, the A stimulus preceded the B stimulus; for others, the B stimulus preceded the A stimulus; while for still others, A and B occurred simultaneously. Conditioning was assessed in testing to both A and B.

The first four experiments found that, despite

predictions from the discrepancy model (Rescorla & Wagner, 1972), the time interval between the presentation of the A stimulus and the US in pretraining had no effect on blocking. In addition, a significant blocking effect was found with both simultaneous and serial compounds, regardless of the order of presentation of the elements of the compound.

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CHAPTER I

INTRODUCTION

The phenomenon of blocking, first studied extensively by Kamin (1968, 1969), has had a profound influence on theory construction in the area of Pavlovian conditioning. Blocking occurs when the amount of conditioning to some neutral stimulus (B) is less as a result of its reinforcement in compound with a preconditioned excitor (A) than when it is reinforced in compound with a neutral A stimulus. Conditioning to B is said to be blocked by the presence of the preconditioned A.

Among the theories generated in response to the discovery of the blocking phenomenon is the "discrepancy" model of conditioning (Rescorla & Wagner, 1972). Specifically, the blocking phenomenon led Rescorla and Wagner to postulate that the amount of change in conditioned strength (ΔV) that accrues to a stimulus, B, on a given trial is proportional to the discrepancy between the asymptotic level of conditioning (λ) that the US in use will support and the amount of conditioned strength that has already accrued to all the stimuli present on that trial (V_{AB}). Thus, formally:

$$\Delta V_B = f(\lambda - V_{AB}), \text{ where } V_{AB} = V_A + V_B.$$

In this model, stimuli compete for a limited amount of associative strength (λ). In the case of blocking, when A has been previously conditioned, the ($\lambda - V_{AB}$) discrepancy is too small to allow conditioning to occur to the added B stimulus.

Although the discrepancy model was originally formulated to account for the blocking effect, it has also proven successful in predicting and explaining many other phenomena including "super conditioning" (Rescorla, 1971), loss of excitation through reinforcement (Rescorla, 1970; Kamin & Gaioni, 1974), inhibitory conditioning through reinforcement (Kremer, 1978), inhibitory conditioning more generally (Wagner & Rescorla, 1972), and sequencing effects in truly random control procedures (Benedict & Ayres, 1972; Ayres, Benedict, & Witcher, 1975). The discrepancy model has certainly been the most influential model of Pavlovian conditioning for the past several years.

Since the phenomenon of blocking has led to the formulation of such a powerful theory, it is surprising to note that the conditions under which blocking has been demonstrated are very restricted. That is,

a demonstration of blocking has typically involved preconditioning A and conditioning the AB compound in a forward delay conditioning procedure. A forward delay conditioning procedure is one in which the onset of the CS precedes the onset of the US and CS offset occurs simultaneously with or following the onset of the US. Furthermore, the two elements of the AB compound have, with a few exceptions (Kamin, 1968; Cheatle & Rudy, 1978), usually been coextensive, i.e. simultaneously compounded. The present series of studies departed from this tradition by 1) examining blocking using Pavlovian trace conditioning procedures during both A and AB conditioning and 2) examining both simultaneous and serial compounds. Thus, in both A and AB conditioning, the CS ended at least 60 sec prior to the onset of the US; and, in AB compound conditioning, for some groups, presentation of the A stimulus preceded or followed presentation of the B stimulus. The issue is whether blocking occurs under these conditions, especially when the two elements of the compound are not simultaneously compounded.

A further reason for interest in the trace conditioning procedure in a blocking paradigm is that Kamin (1965) has carefully documented the effects of

a wide range of CS-US intervals (ISIs) in the trace procedure. Based on his work, it is possible to select trace intervals that will lead to different levels of conditioning. The discrepancy model, very generally says that, in compound conditioning, an inverse relationship will exist between the amount of conditioned strength already accrued to the A stimulus and the amount of conditioned strength that can be controlled by the added B stimulus. This inverse relationship has previously been demonstrated by varying the number of preconditioning trials given to the A stimulus (Kamin, 1968; 1969). Another test of this prediction occurs if appropriate trace intervals are chosen for the conditioning of the A stimulus in a blocking procedure for different groups. In this case, the use of ISIs leading to different levels of conditioning to the A stimulus for different groups should be reflected in different levels of conditioning to the added B stimulus as a result of AB compound trials. This technique for varying the amount of conditioning to the A stimulus has not been studied before. This is precisely what the first four studies of the present dissertation were designed to investigate.

In addition to varying the level of conditioning to the pretrained A stimulus by manipulating the ISI in a Pavlovian trace conditioning procedure, the present experiments also examined blocking with simultaneous and serial compounds. Since previous blocking studies have typically examined only simultaneous compounds, the empirical question asked here is whether blocking can be demonstrated with serial compounds. It is easier to envision stimulus competition for conditioned strength (Rescorla & Wagner, 1972) or attention (Sutherland & Mackintosh, 1971) when the two elements of a compound are present simultaneously, as in the traditional blocking demonstration, than when the two elements are serially compounded. Thus, intuitively, weaker blocking might be expected in serial compound groups. Furthermore, when the serial compound consists of the added B stimulus followed by the preconditioned A stimulus, something resembling an embedded second-order conditioning paradigm is present. That is, since A is a conditioned excitor, and it is presented following a neutral B stimulus, conditioning might occur to B as a result of its forward pairing with A. Such second-order conditioning might mitigate the usual blocking effect. This possibility

is explored in the fifth experiment described here.

C H A P T E R I I

EXPERIMENT 1

Method

Subjects. Subjects were 32 male albino rats of the Sprague-Dawley strain purchased from the Holtzman Company, Madison, Wisconsin. They were approximately 90 days old on arrival, were housed in individual cages with free access to water, and were maintained at 80% of their free-feeding body weights throughout experimentation.

Apparatus. The apparatus consisted of eight Gerbrands model C conditioning chambers housed in sound attenuating, ventilated cubicles. Dipper feeders were mounted at floor level, 7 cm to the left of a standard Gerbrands response lever. Two 10-cm speakers were mounted on the chamber lid. One was used to present a 1,000-Hz tone CS, which raised the sound level in the chamber from 71 to 81 dB (re $20 \mu\text{N/m}^2$). The other was used in Experiments 4 and 5 to present a continuous white noise background of 82 dB. Two 28-V lights operated simultaneously at 26 V served as the light CS. One was located on the chamber lid; the second was located on the front panel of the

chamber, directly above the dipper feeder and 9.5 cm above the floor. Scrambled grid shock USs were provided by eight Grason-Stadler shock sources and scramblers (Model E1064GS and 700). For all experiments the shock intensity was 1-mA and the shock duration was 1 sec. In addition, for all experiments, the measured baseline response, lever pressing, was reinforced with 4 sec presentations of a 1-ml dipper containing 32% (by weight) sucrose. Response measurement and stimulus presentations were controlled by electromechanical and solid state equipment located in an adjoining room.

Procedure.

Preliminary training. All rats were magazine trained and then left in the chamber while reinforcement was delivered once every minute for 20 min regardless of responding. For the next 2 days, reinforcement occurred for each response until the rats had obtained approximately 90 reinforcers. Four days of 1-hr sessions followed this initial training during which lever pressing was reinforced on the average of once a minute (variable interval or VI 1-min schedule). For all subsequent sessions, a VI 1-min schedule of reinforcement was in effect for lever

pressing and all sessions were 1 hr long.

A-pretraining. In this phase of the experiment the rats were divided into four groups of eight. As shown in Figure 1, these groups were designated 62E, 62C, 105E, and 105C. Here the number indicates the interval (ISI) between the onset of the CS and the onset of the US. The letter indicates whether the group was an experimental blocking group (E) or a control group (C). One of the two experimental groups (Group 105E) received trials with a 2-sec, 1,000-Hz tone presented 105 sec prior to the onset of a 1-sec, 1-mA grid shock US. The other experimental group (Group 62E) received trials with the same tone presented 62 sec prior to the onset of the shock US. For both groups, four trials occurred in each of five daily sessions. During these same sessions, the two control groups (Groups 62C and 105C) received continued VI training with no superimposed CS or US presentations.

AB-compound training. For the next 3 days, all groups received four daily trials with a compound CS consisting of the 2-sec tone and the 2-sec light. For Groups 105E and 105C, the compound was a serial compound; the 2-sec tone began 105 sec before the onset of the shock US while the 2-sec light followed the

Figure 1. A diagram of the design of Experiments 1, 3, and 4.

Group	A- Pretraining	AB-Compound Training	B-Testing	A- Testing
62E				
62C				
105E				
105C				

A: Tone, B: Light

tone and began 62 sec before the onset of the shock US. For Groups 62E and 62C the compound was a simultaneous compound; the 2-sec tone and the 2-sec light CS began simultaneously 62 sec before the onset of the shock US.

Recovery. Two daily VI 1-min recovery sessions followed these conditioning days. The recovery sessions were designed to increase the lever-press baseline response, depressed by shock presentations in the previous phase, so that suppression to the A and B stimuli could be accurately measured later in testing.

Testing. Twelve days of testing immediately followed recovery. For the first 6 days, one reinforced light trial occurred in each 1-hr session. In these "savings" tests for conditioning to the target, light CS (stimulus B), the 2-sec light was presented 62 sec before the onset of the shock US. For the next 6 days, extinction tests for conditioning to the pretrained A stimulus, tone, were conducted. One presentation of the 2-sec tone occurred in each 1-hr session with no subsequent US occurrence.

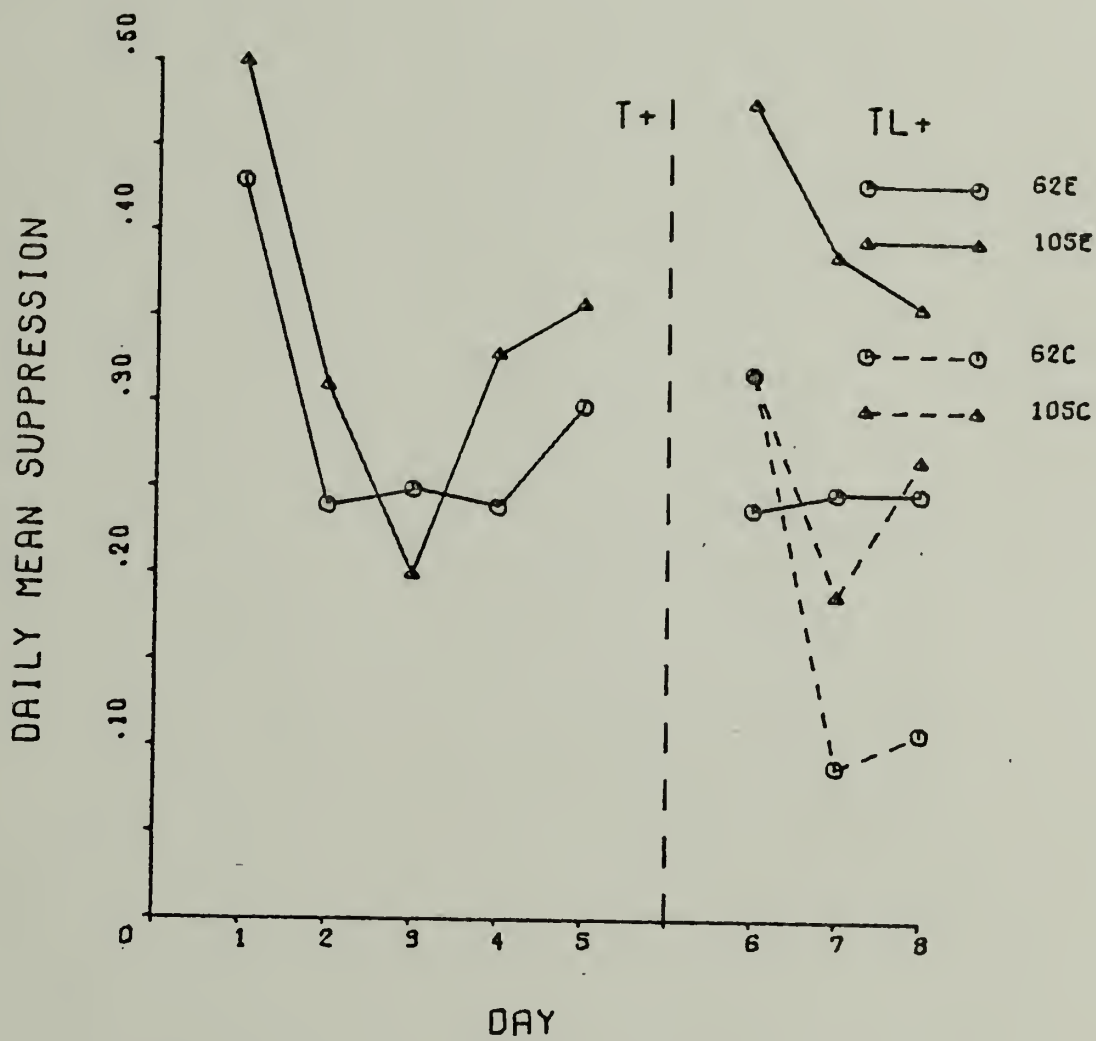
Annau-Kamin (1961) suppression ratios were computed for all training and test trials. This ratio is expressed as $\underline{D} / (\underline{D} + \underline{B})$. In the present study,

D represents the response rate during the 60 sec period immediately prior to the onset of the shock US; B represents the response rate (per minute) during the 3-min period immediately before the onset of the CS. In the case of the serial compound groups, the B period was the 3-min period just before the onset of the first occurring CS in the series. The suppression ratio is 0 if suppression in the D period is complete and .50 when no suppression occurs. In some cases, a suppression ratio was calculated for the 45 sec period immediately following the first occurring CS in the serial-compound groups. In this case, the D component of the equation was the response rate (per minute) during this 45-sec period which included the 2-sec presentation of the second occurring CS.

Results and Discussion

The course of A-pretraining and AB-compound training is shown in Figure 2. The data to the left of the dotted line are from the initial A (tone) conditioning trials for the two experimental groups. These data suggest that the ISI had no effect on conditioning. A mixed design analysis of variance performed on these data found no between-group differences ($F < 1$). This finding does not replicate the results

Figure 2. Daily mean suppression during A-pre-training and AB-compound training for all groups in Experiment 1.



reported by Kamin (1965). Some differences in procedures could account for the apparent discrepancy. For instance, Kamin used 2-hr sessions and a VI 2.5 min schedule of reinforcement for his baseline response.

The data to the right of the dotted line in Figure 2 are from the 3 days of AB-compound conditioning. The figure indicates that during compound conditioning, an effect of ISI was found as well as a paradoxical effect of pretraining. Thus, Groups 62E and 62C showed more suppression than Groups 105E and 105C, suggesting an effect of ISI. And, Groups 62E and 105E showed less suppression than Groups 62C and 105C, indicating a paradoxical effect of pretraining: pretraining stimulus A seemed to retard subsequent conditioning to the AB compound. These findings were supported by statistical analysis. An analysis of variance in which the factors examined were ISI (62 sec or 105 sec), group (experimental or control), and trial (1-12) showed that all of these factors did affect conditioning (ISI, $F=12.95$, $df=1,28$, $p < .01$; Group, $F=9.99$, $df=1,28$, $p < .01$; Trial, $F=4.84$, $df=11,308$, $p < .01$).

The ISI effects seen in AB-compound conditioning conform better to those reported for single elements

by Kamin (1965). It is also interesting to note that the two control groups acquired suppression to the compound more rapidly than the two experimental groups did to the tone alone in pretraining. This could be a result of the greater salience of the light or of the compound as compared to the tone alone or it could be an instance of the Pavlovian law of summation (Kamin, 1969). In addition, the two control groups showed more suppression to the compound than did the two experimental groups. That is, as noted earlier, previous conditioning to the tone-alone seems to have retarded acquisition to the tone-light compound for the experimental groups. Indeed, at the start of compound training, Group 105E shows a sharp decrease in suppression to the compound as compared to its suppression to the tone-alone in pretraining. Table 1 presents a more detailed analysis of this result. As can be seen from the table, the loss in suppression on the 1st day of compound conditioning is due to the introduction of the novel light CS. Thus, when a suppression ratio is computed for the first 45 sec of the trace interval as well as for the last 60 sec period, we can see that suppression is alleviated only in the last 60 sec after presentation of the novel light.

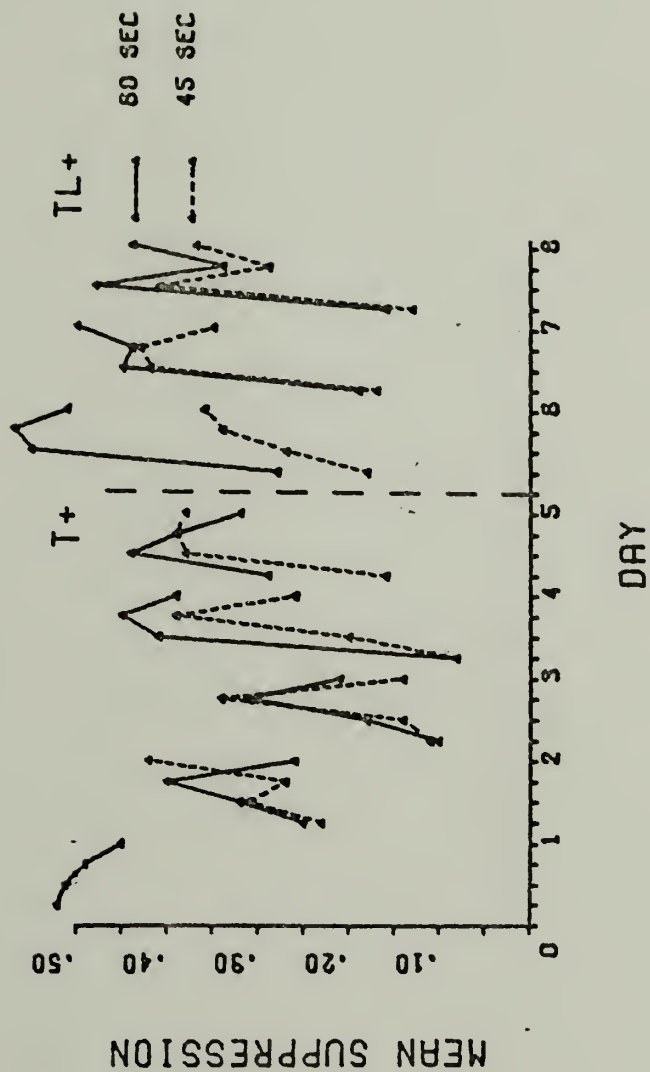
Table 1
 Mean suppression ratios for Groups 62E and 105E
 of Experiment 1 on the last day of A-pretraining
 and the 1st day of AB-compound training.

Group	Day	
	Last day of A-pretraining	1 st day of AB-compound training
60 sec measure		
105E	.36	.48
62E	.30	.23
45 sec measure		
105E	.32	.29

Table 1 also shows that this loss did not occur when the pretrained tone and novel light were presented simultaneously as in Group 62E. Kamin (1968, 1969) found a loss in suppression on the first trial of compound conditioning when the CSs were simultaneously compounded in a forward delay procedure. However, in order to achieve a statistically significant effect, he had to pool data from 153 subjects. In the present experiment, only the serial compound produced a loss of suppression. For Group 105E the loss seemed greatest on trials 3 and 4.

Figure 3 shows the course of A pretraining and AB compound training for Group 105E with suppression ratios computed for the first 45 sec of the trace interval as well as for the last 60 sec of the trace interval. From the figure it can be seen that until the introduction of the novel B stimulus (light) in AB compound conditioning, suppression throughout the 105 sec interval is fairly uniform. However, with the introduction of the novel light (B) stimulus, suppression becomes greater during the first 45 sec as compared to the last 60 sec. An analysis of variance was performed on the data from the last day of A pretraining and the 1st day of AB-compound training

Figure 3. Mean trial-by-trial suppression during A-pretraining and AB-compound training for Group 105E of Experiment 1 with suppression ratios computed separately for the first 45 sec and the last 60 sec of the trace interval.



comparing suppression in the first 45 sec with suppression in the last 60 sec. The finding that the suppression across the trace interval became less uniform as a result of the introduction of the novel light was reflected in a significant days x measure interaction term ($F=7.29$, $df=1,7$, $p<.05$).

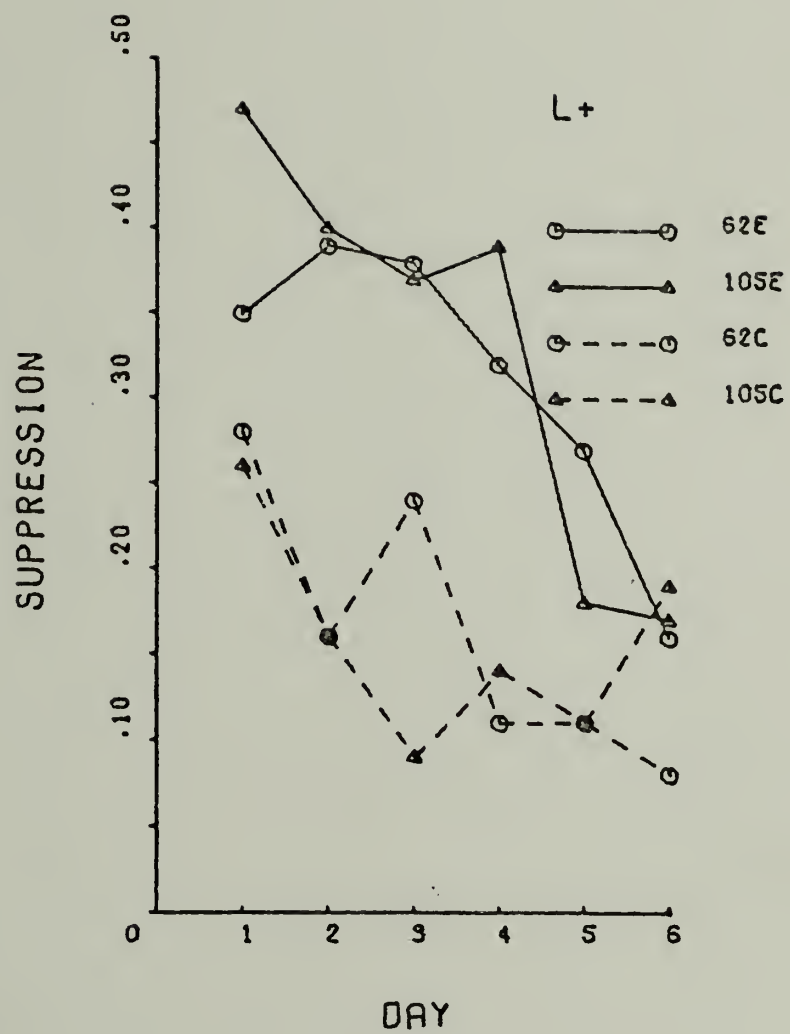
In general, both Kamin's result and the present finding seem to be instances of Pavlov's "external inhibition". Pavlov (1960) frequently found that superimposing a novel stimulus on a previously conditioned CS would temporarily disrupt the CR to the latter. The serial-compound preparation in this experiment seems to be maximally sensitive to this effect. Why it should be more sensitive than the simultaneous-compound preparation is unclear. Is it because the "trace" of the pretrained CS is weaker at the moment the novel CS is presented, thus making control by the pretrained CS easier to disrupt? Or, is it because the CR established with the 105-sec ISI is weaker (and hence easier to disrupt) than that established with the 62-sec ISI? This latter hypothesis, if confirmed, would be interesting methodologically, in that it would suggest that an external inhibition test of conditioning (Figure 2, right panel) can be

more sensitive to differences in conditioning than a more direct measure (Figure 2, left panel).

In Figure 3, note that the suppression decreases dramatically within each session. These within-session decrements in suppression occurred in all the experiments reported here and can be seen whenever more than one trial occurred in a session and the data are plotted on a trial-by-trial basis as in Figures 3, 7, 11, and 15. The trial-by-trial data from A pretraining in Experiment 2 reported here have been published elsewhere along with a discussion of the possible theoretical implications of these decrements (Ayres, Berger-Gross, Kohler, Mahoney, & Stone, in press).

The data from the savings test for conditioning to the added light (B) stimulus appear in Figure 4. The figure shows that both experimental groups exhibited less suppression to the light than did their respective controls. This result indicates that blocking can occur in trace conditioning procedures and with both simultaneous and serial compounds. No statistical differences were found between the two experimental groups or between the two control groups. This finding would be expected from the results of A pretraining since no differences were found between

Figure 4. Daily mean suppression to the target
(B) stimulus for all groups in Experiment 1.

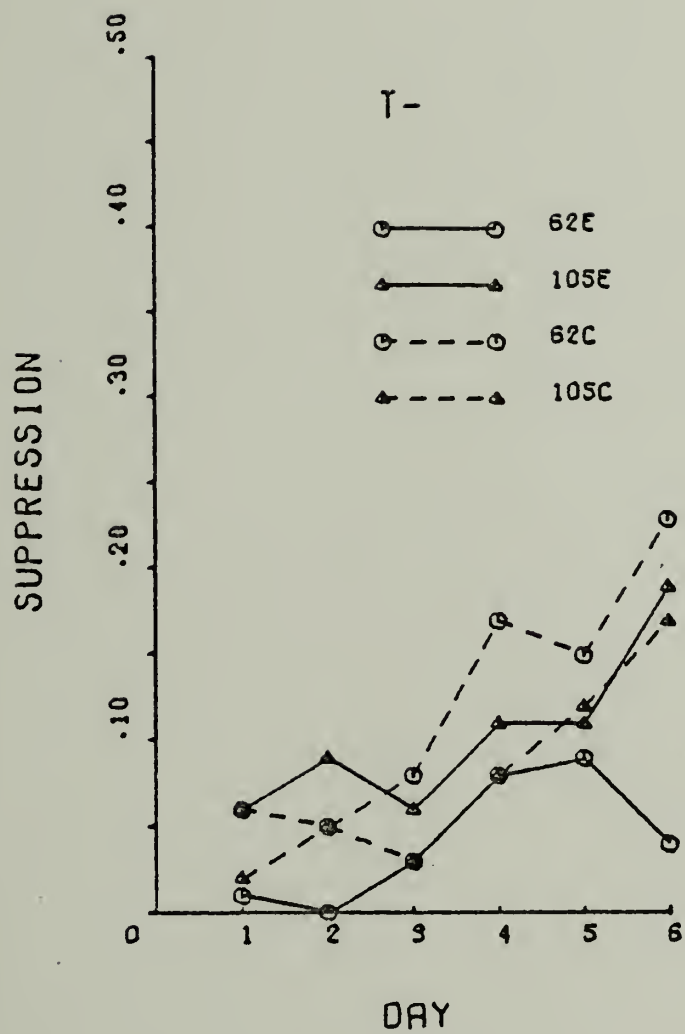


the two experimental groups in this phase. A $2 \times 2 \times 6$ analysis of variance was performed on the savings test data. The factors were ISI (62 or 105), group (Experimental or Control), and trial (1-6) respectively. The blocking effect was confirmed as the difference between the experimental and control groups was significant ($F=15.04$, $df=1,28$, $p < .01$). The ISI effect was not significant ($F < 1$). The trial factor was significant ($F=8.34$, $df=5,140$, $p < .01$) indicating the course of acquisition of suppression to the light in all groups.

A similar analysis of variance was performed on the pre-CS rates during the light savings test, and no significant differences were found. The mean baseline response rates were 19.69, 25.83, 27.60, and 24.52 for Groups 62E, 62C, 105E, and 105C respectively. Thus, the significant difference found in suppression to the light by the experimental and control groups is not complicated by differences in the baseline response rates.

The data from the extinction test for conditioning to the pretrained tone (stimulus A) are shown in Figure 5. These data are of considerable interest for two reasons: First, they are rarely reported in

Figure 5. Daily mean suppression to the pre-trained (A) stimulus for all groups in Experiment 1.



the blocking literature; and, second, the discrepancy model makes very strong predictions about what should occur in such tests. According to the model, blocking to stimulus B occurs during AB conditioning because A, by virtue of its pretraining, has already approached λ . This makes the $(\lambda - V_{AB})$ discrepancy too small to permit further increments in conditioning to either A or B. However, if A has not been pretrained, both A and B can gain conditioned strength during compound conditioning until the sum of their strengths equals λ . Assuming A and B to be of roughly equal salience, each stimulus should approach an asymptote of approximately $\lambda/2$. This means that following compound conditioning, the conditioned strength of A in groups for which A has been pretrained should be considerably stronger than in groups for which A has not been pretrained. The results shown in Figure 5, however, do not confirm this prediction. No between-group differences were found. A $2 \times 2 \times 6$ analysis of variance, in which the factors were ISI, group, and trials, showed that the only significant effect was that of trials ($F=16.22$, $df=5,140$, $p < .01$), indicating the course of extinction to the tone.

In summary, this experiment demonstrated blocking

in a trace conditioning procedure with both simultaneous and serial compounds. The expected effect of ISI was not found during A pretraining and therefore, no differences in the magnitude of the blocking effect to stimulus B could be predicted from the discrepancy model of Rescorla and Wagner (1972). In addition, the discrepancy model's prediction that differences should exist between the experimental and control groups in the conditioning shown to A following AB compound conditioning, was not confirmed. The experiment, therefore, succeeded in extending the generality of the blocking phenomenon, but it failed to provide a strong test of the discrepancy model's prediction about the ISI manipulation, and it failed to confirm the model's predictions about what should occur during A testing.

C H A P T E R I I I

EXPERIMENT 2

Since Kamin's (1965) original data on the effects of ISI on trace conditioning were not replicated in Experiment 1, a second experiment was conducted using three different ISIs and more closely approximating the other parameters of the original Kamin study. Specifically, 2-hr sessions were used, and the baseline response was reinforced on a VI 2-min schedule. The same tone and light served as the A and B CSs as in Experiment 1, and the same shock served as the US. The study involved three groups of rats conditioned at different ISIs. The procedure resembled a blocking design with no control groups. The major purpose of this second experiment was to find two ISIs that would lead to different levels of conditioning.

Method

Subjects and Apparatus. Twenty-four rats similar to those of Experiment 1 were maintained at 80% of their free-feeding body weights and were allowed free access to water in their home cages. The apparatus was unchanged.

Procedure.

Preliminary training. Preliminary training differed from that of Experiment 1 in only two respects. First, all VI training sessions were 2 hr long. Second, after the 1st day of VI training, the schedule of reinforcement was changed to a VI 2-min schedule from a VI 1-min schedule. These parameters remained in effect throughout the remainder of the experiment.

A-pretraining. All three groups received four trials in each of five daily sessions. Trials for Group 62 and Group 105 were identical to the trials for Group 62E and Group 105E during pretraining in Experiment 1. Thus, a 2-sec tone (stimulus A) occurred 62 sec or 105 sec before the onset of the US for Groups 62 and 105 respectively. For Group 135, the 2-sec tone occurred 135 sec before the onset of the US. The US for all groups was a 1-sec, 1-mA foot shock.

AB-compound training. AB-compound training lasted 3 days. Again, four trials occurred in each daily session. For all three groups, the 2-sec light (stimulus B) occurred 62 sec before the US. For Group 62, the 2-sec tone (stimulus A) occurred simultaneously

with the 2-sec light. For Group 105, the 2-sec tone occurred 105 sec before the US. For Group 135, the 2-sec tone occurred 135 sec before the US.

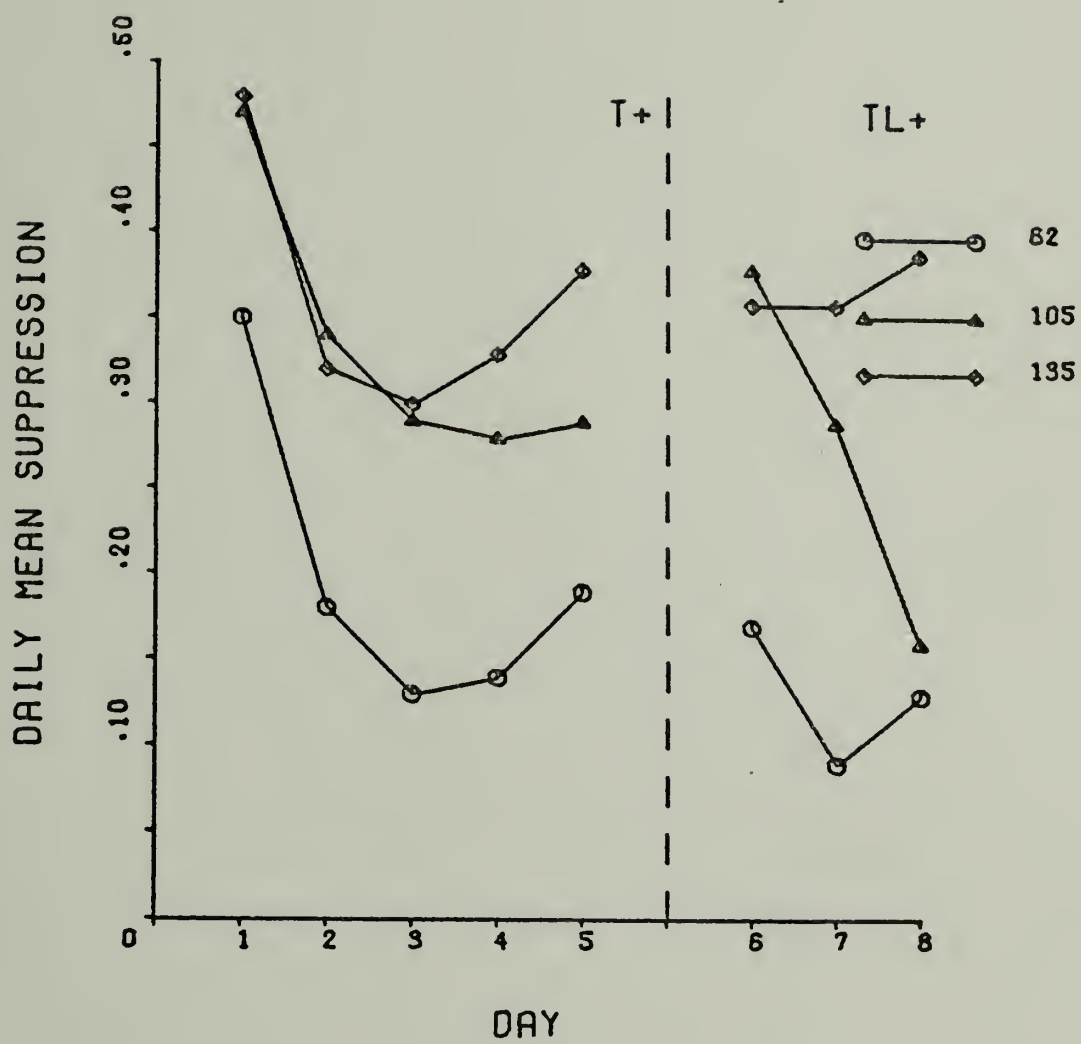
Recovery. Two days of recovery sessions followed conditioning. Lever pressing was again reinforced on a VI 2-min schedule but no CSs or USs were presented.

Testing. A savings test for conditioning to the target light stimulus, B, and an extinction test for conditioning to the pretrained tone stimulus, A, followed these recovery sessions. These test trials occurred at the rate of one in each 2-hr session and were superimposed on the VI 2-min reinforced baseline. Six trials were given to the 2-sec light and then six trials to the 2-sec tone.

Results and Discussion

The Annau-Kamin suppression ratios computed for tone (A) pretraining and tone-light (AB) compound training of this experiment appear in Figure 6. The data to the left of the dotted line are from A (tone) pretraining for all groups. Here, an ISI effect similar to that observed by Kamin (1965) was evident. Group 62 exhibited more suppression to the tone and

Figure 6. Daily mean suppression during A-pre-training and AB-compound training for all groups in Experiment 2.



faster acquisition of suppression to the tone than either of the other two groups. An analysis of variance indicated that the effect of ISI was significant ($F=3.63$, $df=2,21$, $p<.05$). A significant effect was also found for trials ($F=8.75$, $df=19,399$, $p<.01$), indicating the course of acquisition of suppression to the tone in all groups.

The data to the right of the dotted line in Figure 6 are from tone-light compound conditioning. Again, an ISI effect was found ($F=5.64$, $df=2,21$, $p<.05$), as was a trial effect ($F=5.02$, $df=11,231$, $p<.05$). Note the loss in suppression for Group 105 on the 1st day of compound conditioning. This loss replicates the "external inhibition" effect seen in Experiment 1 (pp 15-19). Table 2 provides a more detailed analysis of the effect and shows, as before, that the loss in suppression to the compound in Group 105 is due to the presentation of the novel light. This loss in suppression from single stimulus (tone) training to compound (tone-light) training was statistically significant as measured by a paired t-test performed on the daily mean suppression in the last 60 sec on the 5th day of tone training versus the 1st day of compound conditioning ($t=2.83$, $df=7$, $p<.05$). Again,

Table 2

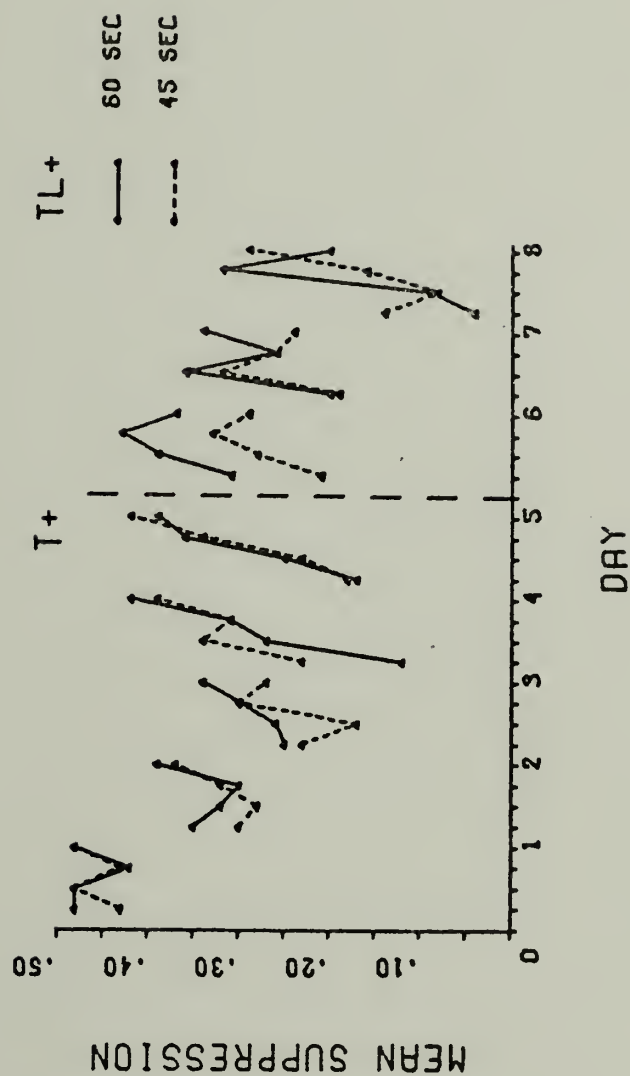
Mean suppression ratios for Groups 105 and 62 of Experiment 2 on the last day of A-pretraining and the 1st day of AB-compound training.

Group	Day	
	Last day of A-pretraining	1 st day of AB-compound training
60 sec measure		
105	.29	.37
62	.19	.17
45 sec measure		
105	.29	.28

as before, the effect did not occur in Group 62, which received the two stimuli in simultaneous compound. It also did not occur in Group 135. This may be a result of the low level of suppression shown in this group to the tone alone (i.e., a ceiling effect may have occurred for this group).

Figure 7 shows the course of A pretraining and AB compound training for Group 105 with suppression ratios computed separately for both the first 45 sec and the last 60 sec of the trace interval. As in Experiment 1, suppression is fairly uniform throughout the trace interval during A pretraining. However, when the novel light (B) stimulus is introduced, suppression during the first 45 sec becomes greater than that in the last 60 sec. An analysis of variance was performed on the data from the last day of tone (A) pretraining and the 1st day of tone-light (AB) compound training comparing suppression in the first 45 sec and the last 60 sec of the trace interval. Unfortunately, the significant interaction found in a similar analysis of the data from Experiment 1 (p 19) was not found in this second experiment ($F=4.54$, $df=1,7$, $p>.10$). Thus, although a visual inspection of Figure 7 shows a divergence of suppression during the

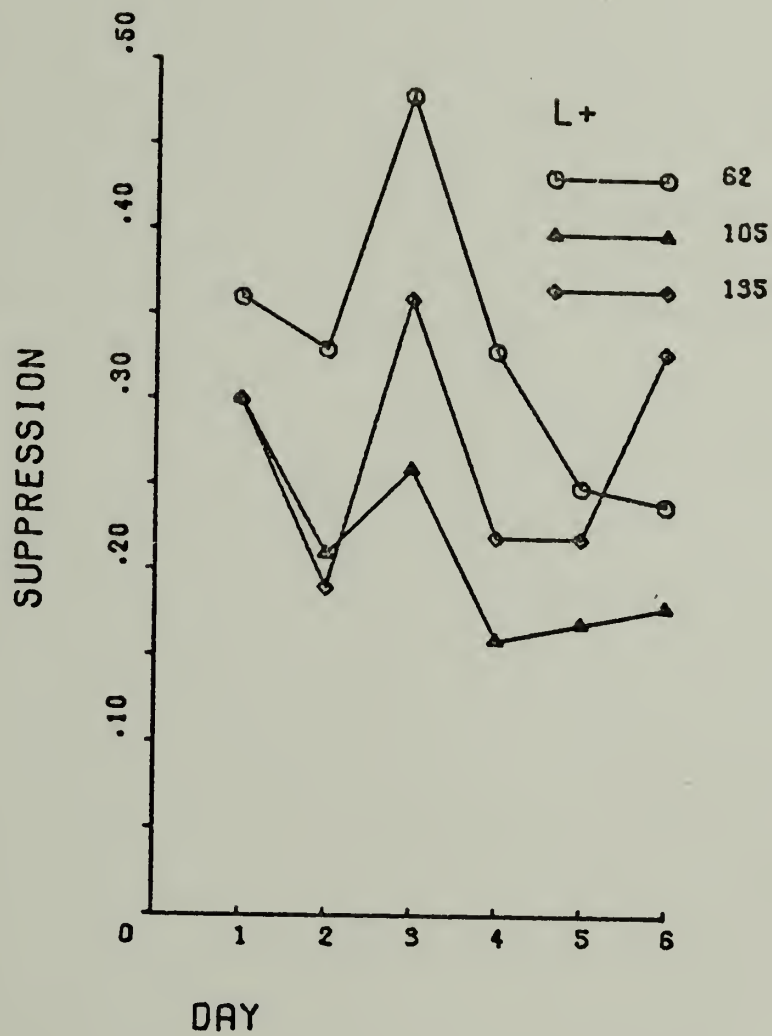
Figure 7. Mean trial-by-trial suppression during A-pretraining and AB-compound training for Group 105 of Experiment 2 with suppression ratios computed separately for the first 45 sec and the last 60 sec of the trace interval.



two segments of the trace interval on the 1st day of compound AB training similar to that shown in Figure 3 (Experiment 1), this effect is not statistically significant.

The data shown in Figure 8 are from the savings test for conditioning to the target, light CS, stimulus B. The ISI differences seen here were in the direction predicted by the discrepancy model for Group 62 vs. Group 105, and for Group 62 vs. Group 135. That is, both Group 105 and Group 135 tended to show more suppression to the light than did Group 62. The direction of this result is in agreement with the discrepancy model since both Group 105 and Group 135 showed less suppression to the tone during pretraining than did Group 62. However, differences among groups during the savings test were not statistically reliable as measured by an analysis of variance ($F=1.09$, $df=2,21$, $p>.05$). In addition, an analysis of variance performed on the pre-CS rates showed that the groups differed significantly in their baseline response rates during testing ($F=4.96$, $df=2,21$, $p<.05$). The mean response rates per minute for each group averaged across all the light savings test trials were 17.44, 27.47, and 13.66 for Groups 62, 105, and

Figure 8. Daily mean suppression to the Target
(B) stimulus for all groups in Experiment 2.

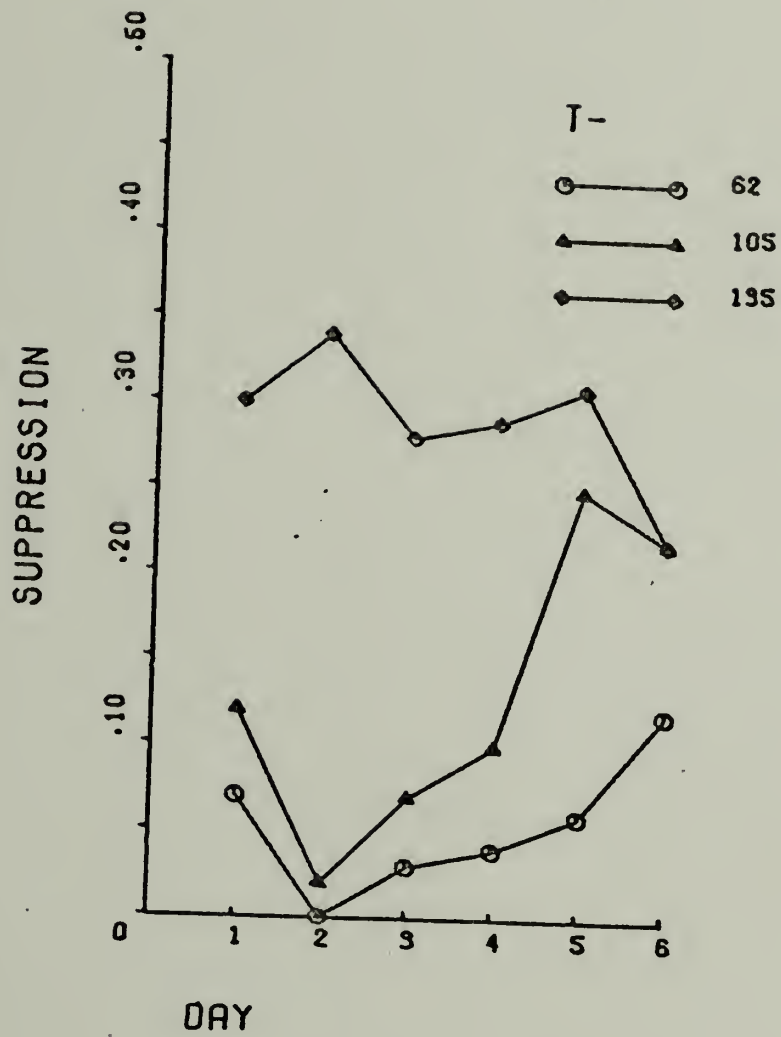


135 respectively.

The data from the extinction test for conditioning to the pretrained tone CS (A) are shown in Figure 9. The differences among groups found during tone pretraining were also found here ($F=6.96$, $df=2,21$, $p<.01$). Again, however, these results were complicated by a significant difference in the baseline response rates of the groups ($F=4.14$, $df=2,21$, $p<.05$). The mean response rates per minute for tone testing were 16.92, 24.38, and 12.32 for Groups 62, 105, and 135 respectively.

In summary, this second experiment did demonstrate an effect of ISI similar to that found by Kamin (1965) during tone (A) pretraining. However, while the data from the light (B) savings test indicated differences in conditioning in the appropriate direction, these differences were not statistically reliable and were further complicated by differences among groups in baseline response rates.

Figure 9. Daily mean suppression to the pretrain-
ed (A) stimulus for all groups in Experiment 2,



CHAPTER IV

EXPERIMENT 3

Since Experiment 2 showed a significant effect of ISI in tone (A) pretraining, Experiment 3 used the same parameters, i.e. a 2-min schedule of reinforcement for the baseline response and 2-hr sessions, and included the appropriate control groups for assessing blocking. That is, Experiment 3 replicated the groups of Experiment 1 with the session and schedule parameters of Experiment 2.

Method

Subjects and Apparatus. Thirty-two rats similar to those of Experiment 1 were maintained as before. The apparatus, CSs, and US were unchanged.

Procedure. Preliminary training proceeded as in Experiment 2. Tone (A) pretraining and tone-light (AB) compound training were identical to that described in Experiment 1. Thus, there were four groups of eight rats each (Group 62E, Group 62C, Group 105E, and Group 105C) treated in the same manner as those of Experiment 1. The only changes from Experiment 1 were that the baseline response (lever pressing) was maintained on a VI 2-min schedule throughout and all

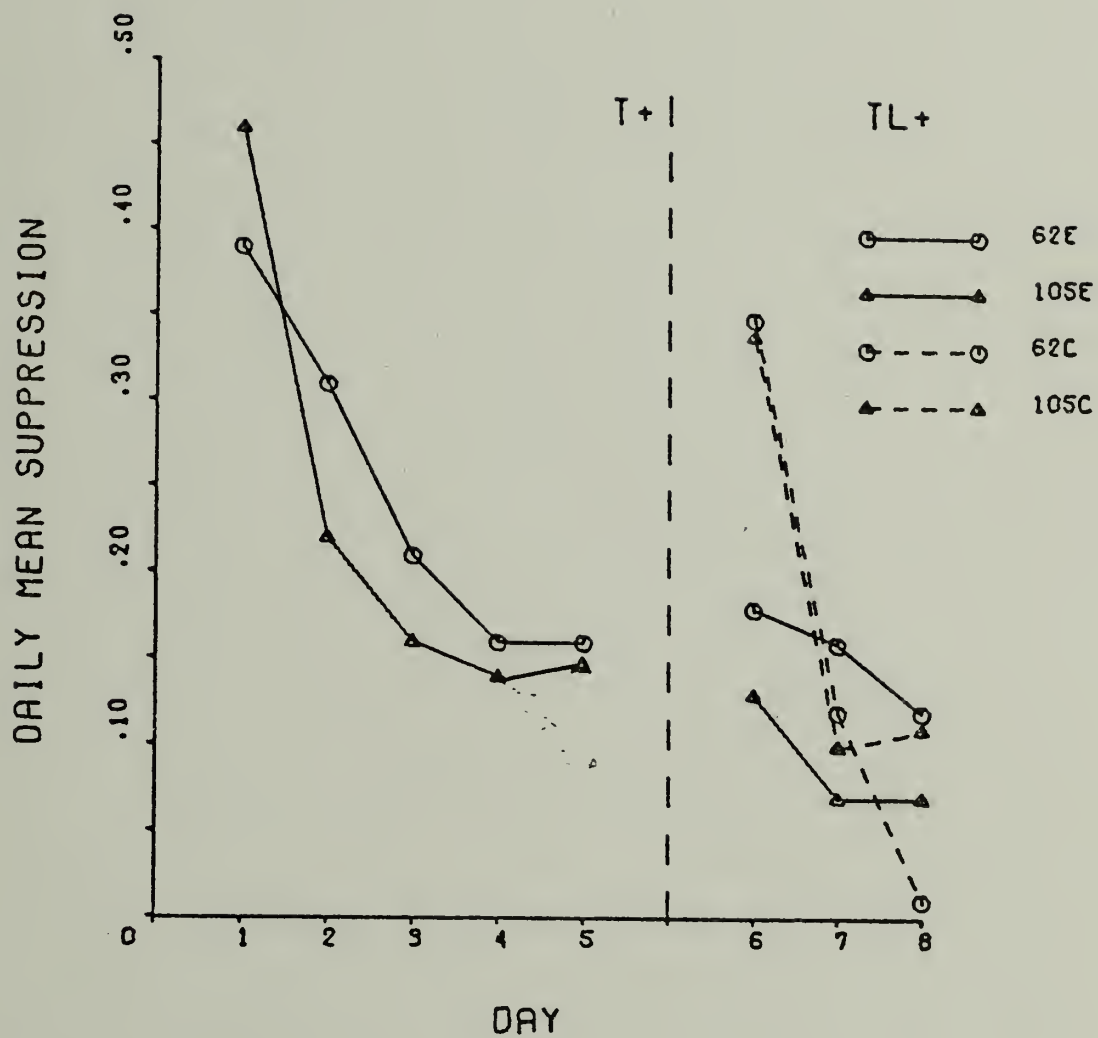
training and testing sessions were 2 hr long.

Results and Discussion

The results of tone (A) pretraining and tone-light (AB) compound training are shown in Figure 10. The data to the left of the dotted line are from tone (A) pretraining for the two experimental groups (Groups 62E and 105E). No significant effect of ISI was found ($F < 1$) and, indeed, Group 105E showed slightly more suppression to the tone than did Group 62E; a result opposite to that found by Kamin (1965) and that obtained in Experiment 2. The only significant effect found in tone (A) pretraining was an effect of trials ($F=10.10$, $df=19,266$, $p < .01$), indicating the course of acquisition of suppression to the tone in both groups.

The data to the right of the dotted line in Figure 10 are from compound (AB) training for all groups. No significant effect of ISI was found ($F < 1$), and no difference was found between the experimental and control groups ($F=2.92$, $df=1,28$, $p < .05$). A significant trials effect ($F=17.84$, $df=11,308$, $p < .01$) and a significant interaction of trials with experimental vs. control groups ($F=8.56$, $df=11,308$, $p < .01$) were

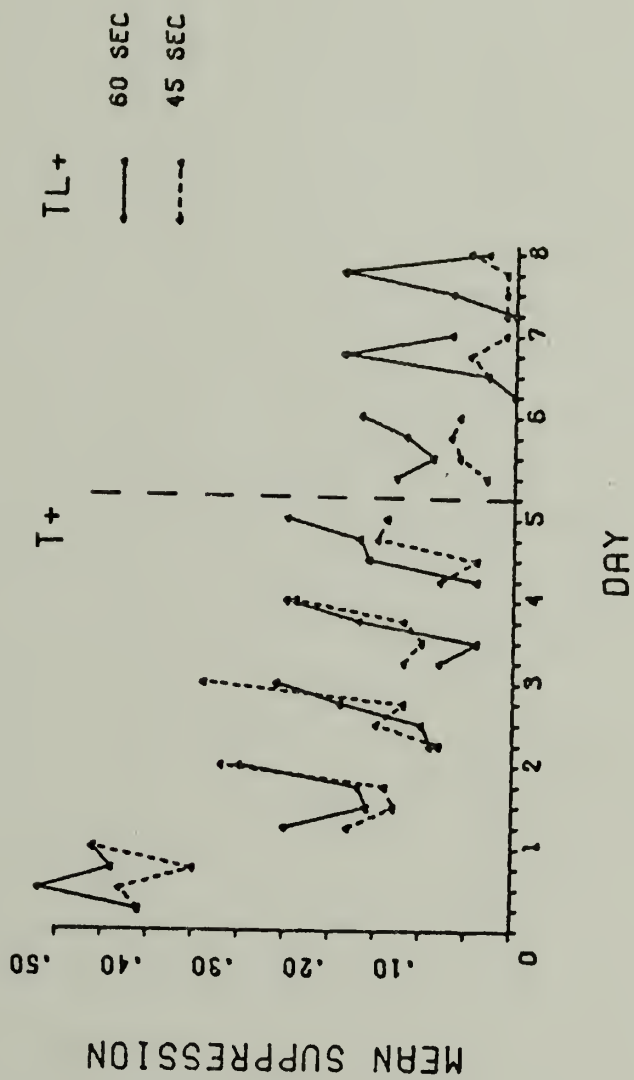
Figure 10. Daily mean suppression during A-pre-training and AB-compound training for all groups in Experiment 3.



found, indicating the course of acquisition of suppression to the compound in all groups and reflecting the fact that the control groups were less suppressed than the experimental groups on the first few trials.

Note that, in this experiment, the external inhibition effect found in Experiments 1 and 2 is not evident from Figure 10 for Group 105E. Rather, the suppression shown on the 1st day to the tone-light compound for Group 105E is greater than the suppression shown to the tone alone on the last day of tone pretraining. Figure 11 shows the trial-by-trial acquisition of suppression to the tone-light compound for Group 105E in both the first 45 sec and the last 60 sec of the trace interval. On the first trial of compound conditioning, Group 105E does show less suppression than on the first trial of the last day of tone pretraining. This loss in suppression on the first trial is statistically significant as measured by a paired t-test similar to that used in Experiment 2 ($t=2.83$, $df=7$, $p<.05$). In addition, as in Experiments 1 and 2, suppression seems uniform throughout the trace interval until the novel light (B) stimulus is introduced at which point suppression becomes greater in the first 45 sec than in the last 60 sec. The

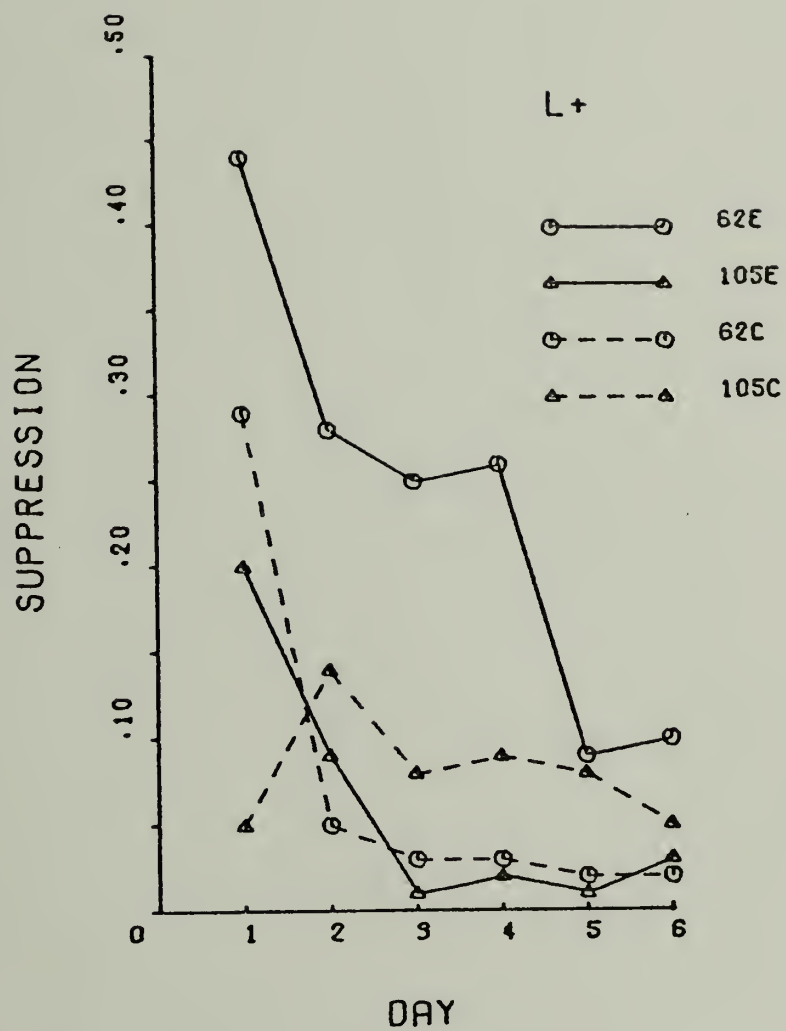
Figure 11. Mean trial-by-trial suppression during A-pretraining and AB-compound training for Group 105E of Experiment 3 with suppression ratios computed separately for the first 45 sec and the last 60 sec of the trace interval.



interaction found in Experiment 1 (p 19) for the same phase of training was not found in this third experiment ($F < 1$). Although the effect of introduction of the light occurs only on the first trial of compound conditioning in this third experiment, it probably does reflect the same external inhibition effect seen in the previous two experiments. It should be noted that Group 105E in this study showed faster acquisition to both the tone alone in pretraining and to the tone-light compound than any other group with the exception of the last day of compound training when Group 62C showed slightly more suppression. This probably accounts for the short life of the external inhibition effect. This finding is discussed more thoroughly below.

The data in Figure 12 are from the savings test for conditioning to the target light (B) CS. On the 1st day of testing, both experimental groups show less suppression to the light than their respective controls, indicating the expected blocking effect ($F = 6.10$, $df = 1, 28$, $p < .05$). An analysis of variance performed on the pre-CS rates found no significant among-group differences in the baseline response rates. The mean baseline response rates averaged over the six

Figure 12. Daily mean suppression to the target
(B) stimulus for all groups in Experiment 3.



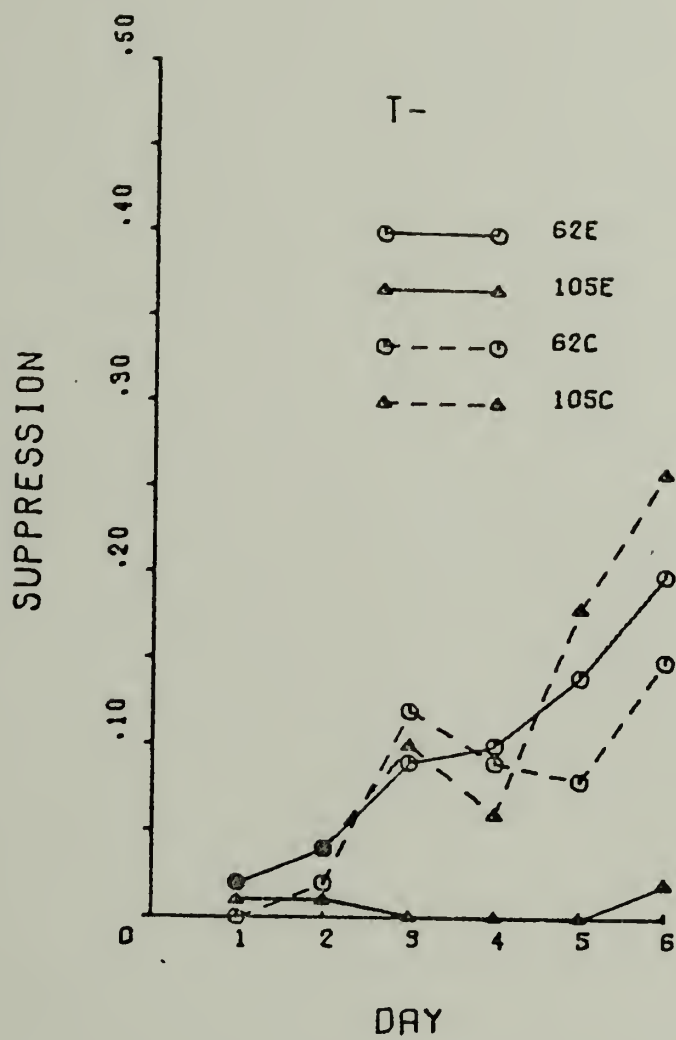
trials of the light savings test were 25.03, 24.38, 24.19, and 23.58 for Groups 62E, 62C, 105E, and 105C respectively.

A significant effect of ISI was also found ($F=8.36$, $df=1,28$, $p<.01$). However, this ISI effect was in a direction opposite to what would have been expected on the basis of the discrepancy model. That is, since Group 105E showed slightly more suppression to the tone in pretraining than did Group 62E, Group 62E should have shown more suppression to the light in testing than should Group 105E. In fact, no significant effect of ISI was found in pretraining and so the significant effect of ISI seen in the light savings test is difficult to interpret.

Close inspection of Figures 10 and 12 reveals that, in every stage of training and testing, Group 105E suppressed more than any other group. For this reason, the significant effect of ISI in the light savings test should be dismissed. It seems that, due to some sampling error, the rats in Group 105E of this experiment were more sensitive to all of the stimuli presented.

The data from the extinction test for conditioning to the pretrained tone (A) shown in Figure 13

Figure 13. Daily mean suppression to the pre-trained (A) stimulus for all groups in Experiment 3.



confirm this hypothesis. Once again, Group 105E shows more suppression than any other group and shows little evidence of extinction. As in Experiment 1 (p 24), there was not a significant difference in suppression for experimental as compared to control groups ($F=2.42$, $df=1,28$, $p>.05$). As discussed in Experiment 1, this result is not compatible with the discrepancy model since a significant blocking effect was found during the light savings test in this third experiment.

In summary, in Experiment 3, as in Experiment 1, blocking was found with both serial and simultaneous compounds in a trace conditioning procedure. In addition, in Experiment 3, while there was no effect of ISI in A pretraining, nevertheless, a difference in blocking for the two experimental groups was found. This difference, however, seemed to be the result of a sampling error. That is, Group 105E suppressed more to the light in the test for conditioning to the target (B) stimulus than did Group 62E, however, Group 105E also suppressed more to the A stimulus in pretraining and to the AB stimulus in compound training. Therefore, although Group 105E displayed more suppression to the light in testing than did Group 62E

as would be expected from the discrepancy model if appropriate differences in conditioning to the A stimulus had been found in pretraining, this result was probably caused by the same factors which caused Group 105E to suppress more to all the stimuli presented (i.e., to a sampling error).

CHAPTER V

EXPERIMENT 4

Experiment 4 replicated Experiment 3 with the hope of avoiding a similar sampling error. The subjects were similar to those of Experiment 3, and the apparatus was unchanged. The procedures were the same as those of Experiment 3 except that background white noise was present continuously. This noise raised the average sound level in the boxes from 71 to 82 dB (re $20\mu\text{N/m}^2$).

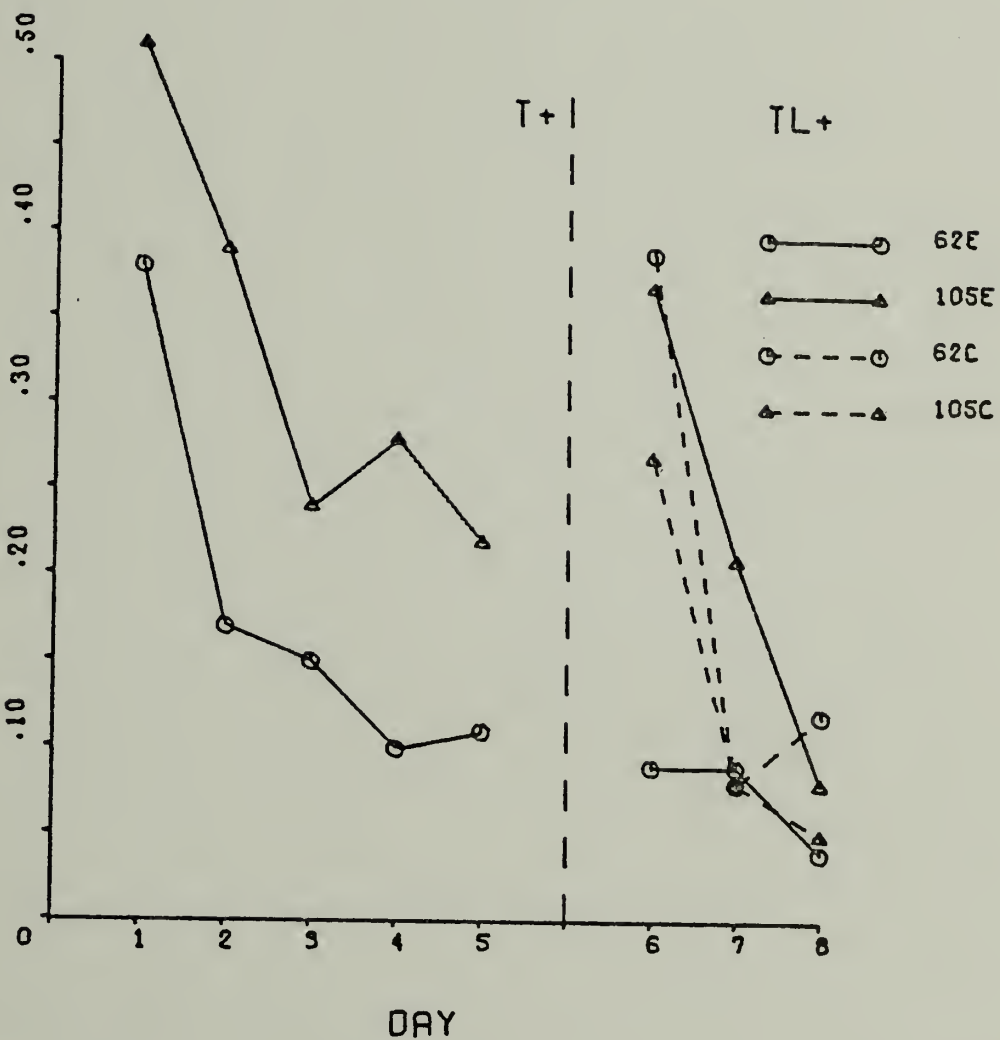
Results and Discussion

The results of tone (A) pretraining and tone-light (AB) compound training appear in Figure 14. The data to the left of the dotted line are from the initial tone conditioning for the two experimental groups. These results are in agreement with those of Kamin (1965) and those of Experiment 2. That is, the group with the shorter ISI (Group 62E) showed more suppression to the tone than did the group with the longer ISI (Group 105E) ($F=11.69$, $df=1,14$, $p<.01$).

The data to the right of the dotted line are from compound tone-light (AB) conditioning for all groups. Unlike Experiments 1 and 2, no significant effect of

Figure 14. Daily mean suppression during A-pre-training and AB-compound training for all groups in Experiment 4.

DAILY MEAN SUPPRESSION



ISI occurred in this phase ($F=2.30$, $df=1,28$, $p>.05$). In addition, the paradoxical effect of pretraining noted in Experiment 1 (p 14) was not replicated here ($F<1$). Indeed, the only significant effect found in this phase of conditioning was the effect of trials ($F=18.59$, $df=11,308$, $p<.01$), indicating the acquisition of suppression in all groups.

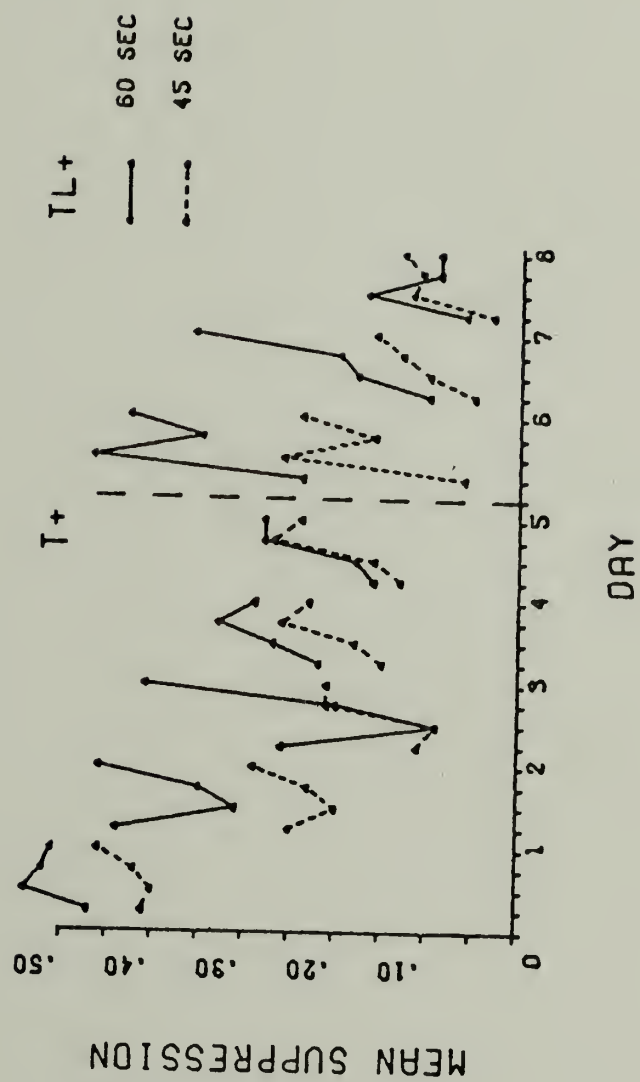
Note that, as in Experiments 1 and 2, Group 105E shows less suppression to the tone-light compound on the 1st day of compound conditioning than to the tone alone on the last day of tone (A) pretraining. Table 3 shows the suppression during the first 45 sec and the last 60 sec for Group 105E and the suppression in Group 62E for the last day of tone (A) pretraining and the 1st day of tone-light (AB) compound training. As in Experiments 1 and 2, the loss in suppression is seen only in the last 60 sec and does not occur in Group 62E. A paired t-test was performed on these data for Group 105E, and a significant loss in suppression was found ($t=2.83$, $df=7$, $p<.05$). Figure 15 shows the trial-by-trial acquisition of suppression to the tone alone and the tone-light compound in Group 105E. As in all three of the previous experiments, suppression throughout the trace interval

Table 3

Mean suppression ratios for Groups 62E and 105E of Experiment 4 on the last day of A-pretraining and the 1st day of AB-compound training.

Group	Day	
	Last day of A-pretraining	1 st day of AB-compound training
60 sec measure		
105E	.22	.37
62E	.11	.09
45 sec measure		
105	.20	.18

Figure 15. Mean trial-by-trial suppression during A-pretraining and AB-compound training for Group 105E of Experiment 4 with suppression ratios computed separately for the first 45 sec and the last 60 sec of the trace interval.

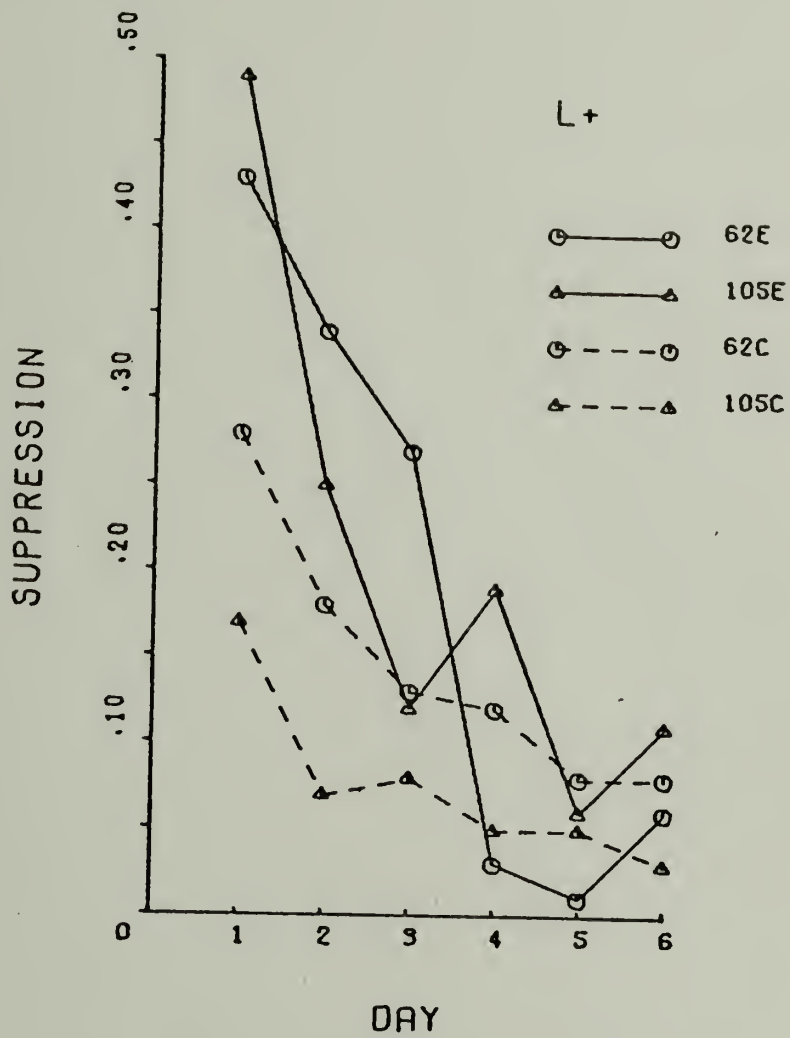


seems to become less uniform when the novel light (B) is introduced in compound training. As in Experiment 1, an analysis of variance was performed on the data from the last day of tone pretraining and the 1st day of compound training comparing suppression in the first 45 sec with suppression in the last 60 sec. A significant interaction was found ($F=25.14$, $df=1,7$, $p<.01$). Thus, Experiment 4 replicated the external inhibition effect seen in the previous three experiments.

The data from the savings test for conditioning to the target, light CS (B) appear in Figure 16. The figure shows that initially the two experimental groups exhibited less suppression to the light than did their respective control groups ($F=9.67$, $df=1,28$, $p<.01$). Thus, as in Experiments 1 and 3, blocking did occur with both serial and simultaneous compounds in a trace conditioning procedure. A separate analysis of variance performed on the pre-CS rates revealed no differences among groups in the rate of the baseline response. The mean response rates per minute for the light savings test were 24.45, 25.17, 20.87, and 26.34 for Groups 62E, 62C, 105E, and 105C respectively.

The effect of ISI during the light savings test

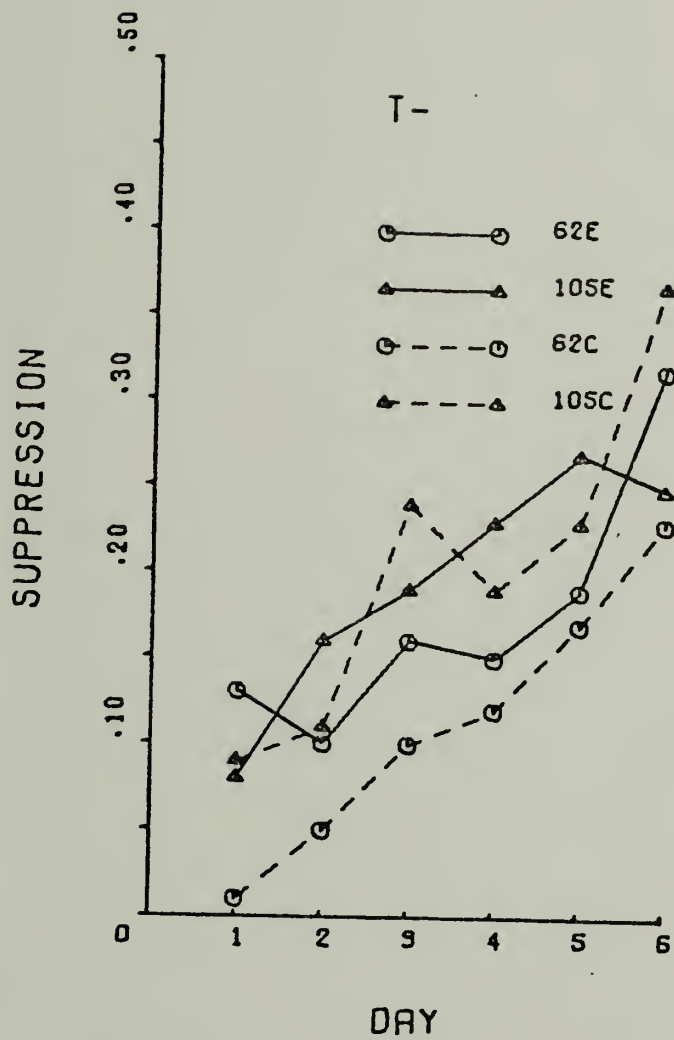
Figure 16. Daily mean suppression to the target
(B) stimulus for all groups in Experiment 4.



was not significant ($F=1.13$, $df=1,28$, $p>.05$) even though a significant ISI effect was found in tone pretraining. Thus, the prediction from the discrepancy model of conditioning, that an inverse relationship should be observed between the amount of conditioned strength accruing to the pretrained stimulus and the amount of conditioned strength controlled by the added stimulus, was not supported. Of course, an argument could be made that the ISIs used were not different enough, or that the differences in the amount of conditioned strength accruing to the pretrained stimulus was not sufficient to cause a measurable difference in the observed blocking effect. It is hard, if not impossible, to adequately answer such an argument; however, a criterion of a statistically significant difference was used in these studies and, if this is not sufficient, then it may be that the model is at least not as sensitive to manipulations of levels of conditioning in pretraining as was previously thought.

The data from the extinction test for conditioning to the pretrained tone (A) stimulus appear in Figure 17. As in Experiments 1 and 3, the only significant effect was the effect of trials ($F=8.61$, $df=5,140$,

Figure 17. Daily mean suppression to the pre-trained (A) stimulus for all groups in Experiment 4.



$p < .01$), indicating the course of extinction in all groups. As discussed in Experiment 1 (p 24), the lack of a difference in suppression to the tone in the experimental vs. control groups is incompatible with the discrepancy model. It is possible that, if the tone extinction test had been administered before the light savings test, such a difference would have been observed. That is, the order of testing may have had an effect on the results of the test. This hypothesis was tested in the fifth experiment reported here.

Taken together, Experiments 1 through 4 demonstrated blocking in a trace conditioning procedure with both simultaneous and serial compounds. However, although a statistically significant difference in pretraining to the tone (stimulus A) for groups conditioned at different ISIs was obtained in Experiment 4, no difference in conditioning to the added (B) light stimulus was found in testing for these same groups. In addition, although a significant blocking effect occurred in Experiments 1, 3, and 4 as measured by a savings test for conditioning to the target (light) CS, no differences were found to exist between the experimental and control groups on a subsequent test to the pretrained tone stimulus (A). Thus, an

inverse relationship was not found between conditioning to the two elements of the compound. It may be that a difference in conditioning to the tone (A) would have been observed if the tone extinction test had preceded the light (B) savings test. This order of testing effect was examined in Experiment 5.

CHAPTER VI

EXPERIMENT 5

Experiment 5 was designed to extend the empirical findings of Experiments 1 through 4 that blocking occurs with Pavlovian forward trace conditioning procedures using simultaneous and serial compounds. In the first four experiments, the serial compound for the experimental blocking group was always composed of the pretrained (A) stimulus followed by the novel (B) stimulus. In Experiment 5, the added (B) stimulus preceded the pretrained (A) stimulus in the serial compound. The discrepancy model of conditioning makes no prediction about how the order of presentation of the elements of a compound might affect blocking. The procedure in this experiment contains an embedded second-order conditioning paradigm during the compound conditioning phase. That is, during compound conditioning, a novel stimulus is followed by a previously conditioned stimulus. Therefore, conditioning to the novel (B) stimulus could occur as a result of its forward pairing with the pretrained (A) stimulus rather than as a result of its direct association with the US. This could lead to an attenuation or

absence of the blocking effect.

A second purpose of this study was to discover whether a difference in conditioning between the experimental and control groups could be found in testing the pretrained (A) stimulus if that test preceded testing for conditioning to the added (B) stimulus. So, for two groups, light (B) testing preceded tone (A) testing as in Experiments 1 through 4, while the order of testing was reversed for the other two groups.

Method

Subjects and Apparatus. Thirty-two male albino rats similar to those used in the previous four experiments were maintained as before. The apparatus, CSs, and US were unchanged.

Procedure.

Preliminary training and A-pretraining. Preliminary training proceeded as in Experiment 4. Following this initial training, the rats were divided into four groups of eight. These groups were designated LTE, TLE, LTC, and TLC. Here, the first two letters indicate the order in which the two stimuli, tone (T) and light (L), were tested. The third letter indicates whether the group was a blocking experimental

(E) or control (C) group.

During A pretraining, the experimental groups, Groups LTE and TLE, received four trials in each of five daily 2-hr sessions with the 2-sec tone (stimulus A) followed 62 sec later by the shock US. The control groups, Groups LTC and TLC, received continued VI training with no CS or US presentations.

AB-compound training. During AB training, all groups received four trials in each of three daily 2-hr sessions with the 2-sec light (stimulus B) and the 2-sec tone (stimulus A). For all groups, the 2-sec light occurred 105 sec before the onset of the shock US, while the 2-sec tone began 62 sec before the onset of the shock US. Two VI 2-min recovery sessions followed AB conditioning similar to those described in Experiments 2 through 4.

Testing. Following recovery, Groups LTE and LTC received 6 days of a savings test for conditioning to the target (light) CS, B, followed by 6 days of an extinction test for conditioning to the pretrained tone CS (A). In contrast, Groups TLE and TLC received 6 days of the extinction test for conditioning to the pretrained tone CS (A) followed by 6 days of the savings test for conditioning to the target

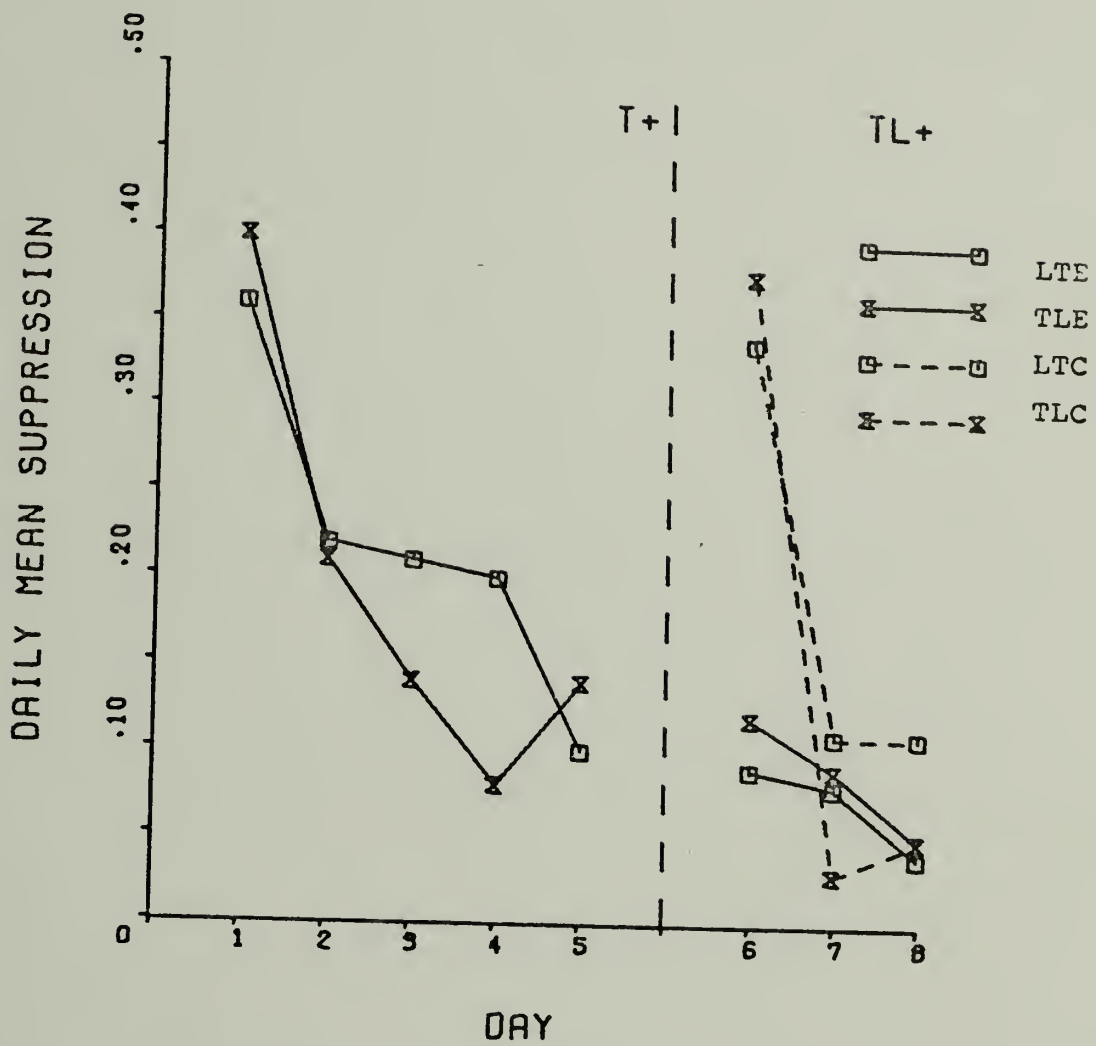
light CS (B). During the savings test, all groups received one trial each day with the 2-sec light followed 105 sec later by the shock US. The tone extinction test trials were identical to those described in Experiments 2 through 4. Annau-Kamin suppression ratios were computed for all training and test trials.

Results and Discussion

The results from A-pretraining and AB-compound training appear in Figure 18. The data to the left of the dotted line are from tone (A) pretraining. The only significant effects were a trials effect ($F=7.73$, $df=19,266$, $p<.01$) and a group x trials interaction ($F=1.90$, $df=19,266$, $p<.05$). The group x trials interaction probably reflects the difference between groups on Days 3 and 4, however, no significant overall effect of groups was found ($F<1$).

The data from AB-compound conditioning are shown to the right of the dotted line in Figure 18. The difference between the experimental and control groups was significant ($F=13.16$, $df=1,28$, $p<.01$) as was the effect of trials ($F=11.83$, $df=11,308$, $p<.01$). The difference between the experimental and control groups reflects the fact that the experimental groups were

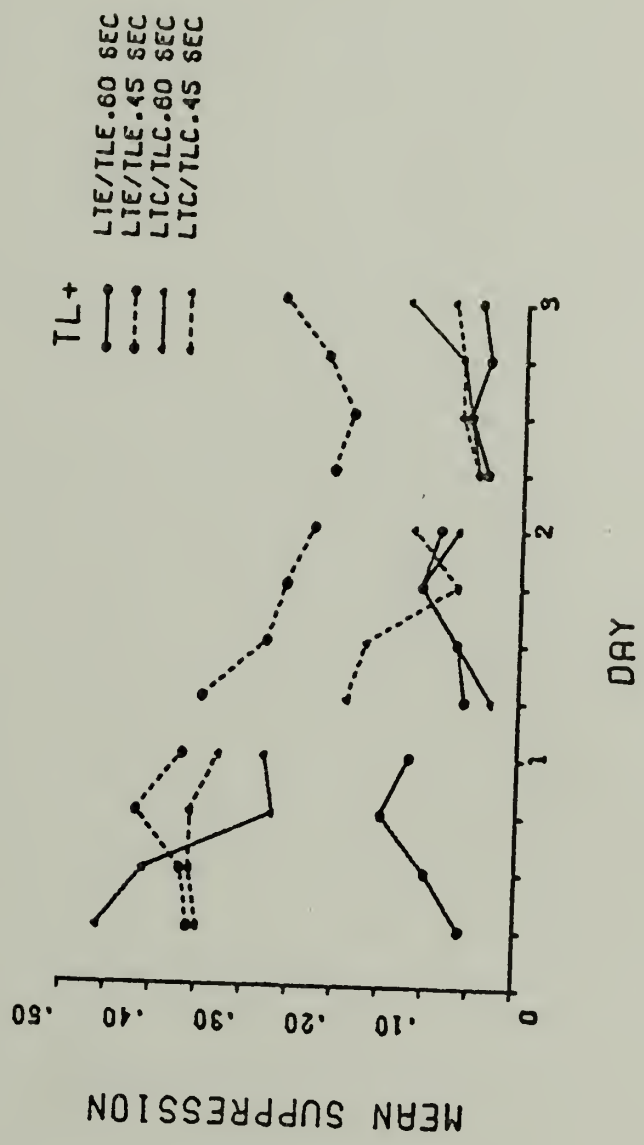
Figure 18. Daily mean suppression during A-pre-training and AB-compound training for all groups in Experiment 5.



already suppressing at the start of AB-compound training while the control groups acquired suppression. A significant group x trials effect supports this statement ($F=9.24$, $df=11,308$, $p<.01$). Note that no external inhibition effect is evident in this experiment. This is probably a result of the fact that, in this experiment, the novel (B) stimulus occurred before the pretrained (A) stimulus rather than after it as in the preceding studies.

Figure 19 shows the trial-by-trial acquisition of suppression to the compound (tone-light) averaged for the two experimental and two control groups. In this case, a suppression ratio has been computed for both the first 45 sec and the last 60 sec of the trace interval. Note that the experimental groups show strong suppression to the pretrained tone on the first few trials but very little suppression to the novel light. The control groups, on the other hand, show little suppression to either stimulus at first. Over the course of conditioning, the acquisition to the light is retarded in the experimental groups as compared to the control groups. This is, in effect, a demonstration of blocking in progress, a demonstration made possible by the use of a serial compound.

Figure 19. Mean trial-by-trial suppression during AB-compound training averaged for the two experimental groups and the two control groups with suppression ratios computed separately for the first 45 sec and the last 60 sec of the trace interval.



Although conditioning to the light (B) stimulus was clearly retarded in the experimental groups, Figure 19 suggests, nevertheless, that the light (B) stimulus did gradually acquire a moderate level of conditioned strength over trials. This impression was supported by a one-way analysis of variance conducted on the data of only the experimental groups. In this analysis, the only factor was trials, and this effect was significant ($F=4.74$, $df=11, 165$, $p<.01$). This finding is theoretically important. It could reflect the growth of excitation to B based on its forward pairing with A (i.e., second-order conditioning), or it could reflect a growth of excitation to B based on its forward pairing with the shock US. If it reflects the latter, it argues against a theoretical proposal by Mackintosh (1975a, 1975b). Mackintosh has argued that no blocking occurs on the first compound trial but that on subsequent trials the animal "learns to ignore" the added B stimulus. In the usual blocking procedure in which A and B are simultaneously compounded, Mackintosh's proposal is untestable because attention to B cannot be separated from attention to A. In the present experiment, where it is possible to separate attention to A and B, the experimental

rats did not appear to be "learning to ignore" the B stimulus.

The data from the savings test for conditioning to the target light CS (B) for all groups are shown in Figure 20. A surprising result occurred on the first trial for the two groups given tone extinction trials prior to the savings test for conditioning to the light (B) stimulus (Groups TLE and TLC). For these two groups, no blocking occurred on the first trial, largely because Group TLC failed to suppress to the light. Table 4 provides a more detailed analysis of the data; it shows that the rats in Group TLC exhibited suppression for the first 45 sec after the light and that only in the last 60 sec, the interval that had followed the tone during compound conditioning, did they cease suppressing. A loss in suppression in this same interval also occurred in Group LTC but to a much lesser extent. Thus, the extinction of the tone (A) prior to light (B) testing may have influenced the suppression seen in the last 60 sec of the light savings test.

One explanation of this loss in suppression is that it reflects a generalization of extinction from the tone to the light. However, if generalized ex-

Figure 20. Daily mean suppression to the target
(B) stimulus for all groups in Experiment 5.

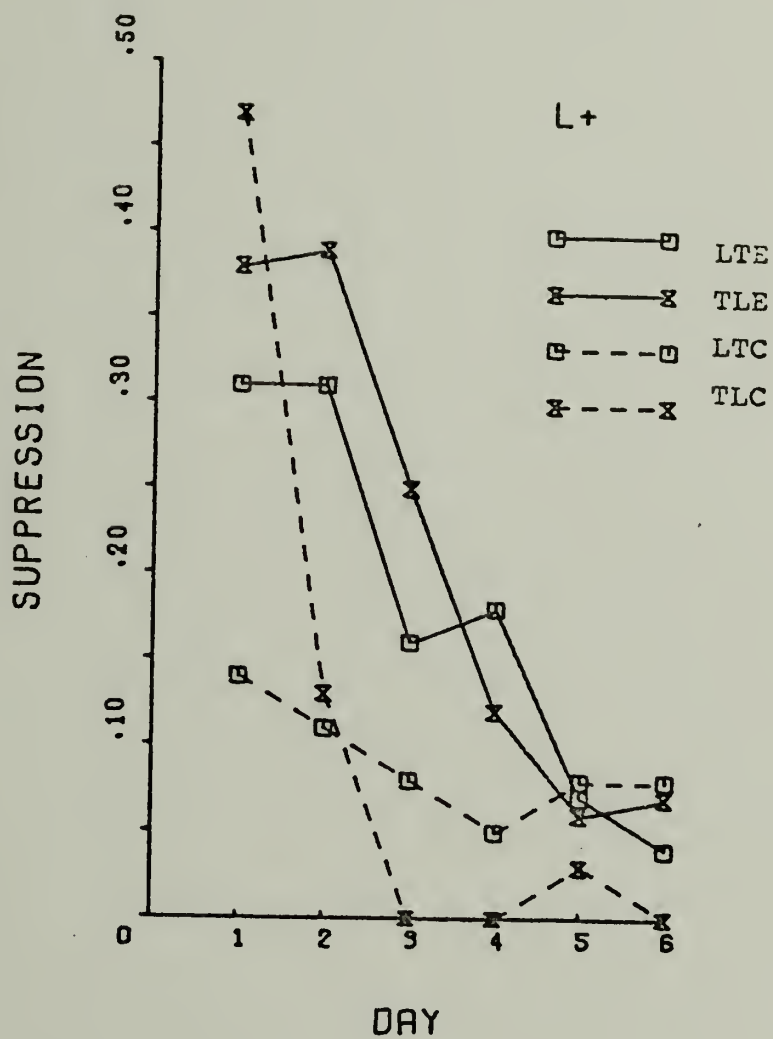


Table 4

Mean suppression ratios for Groups LTE, TLE, LTC, and TLC of Experiment 5 on the 1st day of light (B) test.

Group	Measure	
	45 sec	60 sec
LTE	.28	.31
TLE	.35	.38
LTC	.07	.14
TLC	.21	.47

tion occurred, why was it limited to the last 60 sec of the trace interval? A second explanation might be that the stimulus conditions in testing (single stimulus presentations) differed from those of the immediately preceding training (compound stimulus presentations), resulting in a loss of excitation in testing (generalization decrement). If this were the case, then a similar loss should have occurred in Group LTC. Although a loss in suppression in the last 60 sec did occur in this group, it was not as large as that seen in Group TLC. A third explanation might be that the cue of the light plus a temporal cue (45 sec) in some manner evoked a representation of the tone from memory (Wagner, 1976) and that, since conditioning to the tone had previously been extinguished, a loss in suppression occurred when the tone representation was retrieved. A choice between these alternative explanations is not possible without further research.

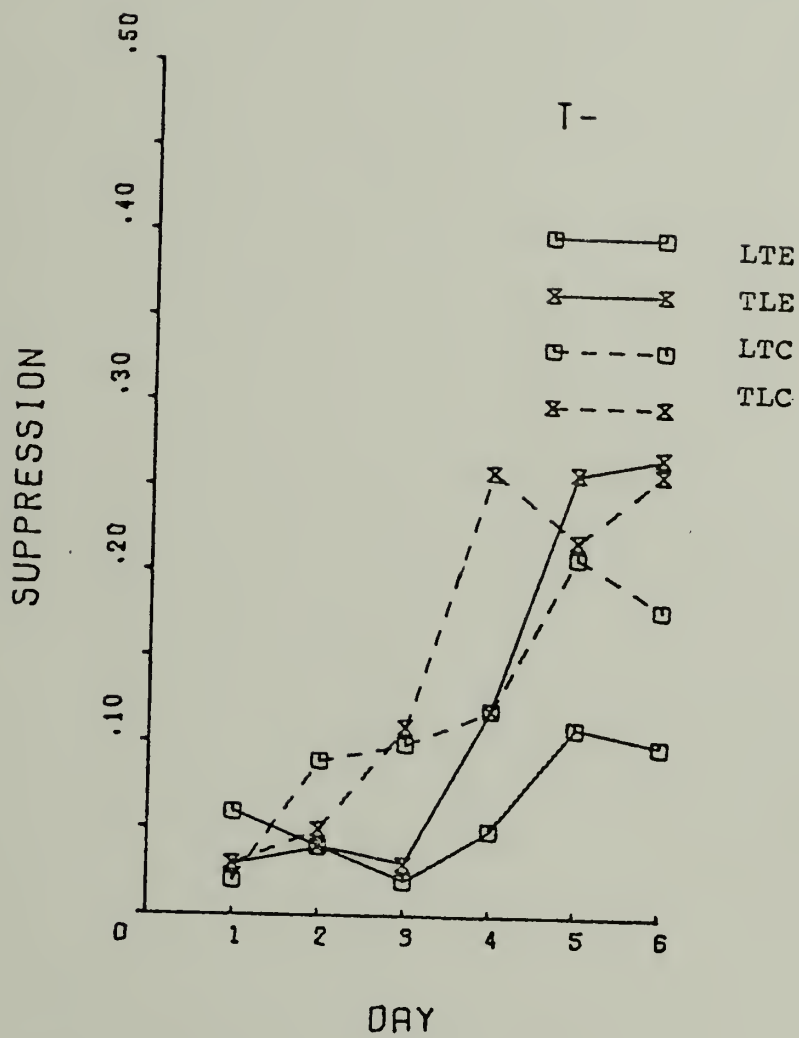
Despite the surprising results obtained on the first trial, the data of Figure 20 do show an overall blocking effect. This effect was statistically significant ($F=6.17$, $df=1,28$, $p<.05$). Thus, blocking occurred in this experiment despite the presence of an

embedded second-order conditioning paradigm. In addition, a significant trial effect was found ($F=21.79$, $df=5,140$, $p<.01$), indicating the acquisition of suppression in all groups.

An analysis of variance was performed on the pre-CS rates from the light savings test. No among-group differences were found in the baseline response rates. The response rates per minute for the four groups were 23.87, 26.90, 20.70, and 33.83 for Groups LTE, LTC, TLE, and TLC respectively.

The data shown in Figure 21 are from the extinction test for conditioning to the pretrained tone (stimulus A). No differences among groups were found ($F=1.36$, $df=1,28$, $p>.05$). So, even when the pretrained (A) tone stimulus was tested before the added (B) light stimulus, no measurable differences in suppression to the tone were found. This was true even though differences among groups were found in suppression to the added (B) light stimulus. These results confirm the findings of Experiments 1 through 4 and show that they were not due to the order in which the components of the compound were tested. Once again, these results present problems for the discrepancy model which predicts that a difference in condition-

Figure 21. Daily mean suppression to the pre-trained (A) stimulus for all groups in Experiment 5.



ing to one element of the compound should cause a difference in conditioning to the other element.

In summary, in Experiment 5 it was found that, despite the presence of an embedded second-order conditioning paradigm in compound conditioning, very little conditioning occurred to the added (B) stimulus in the experimental groups. However, a detailed analysis of the results of compound conditioning, shown in Figure 19, suggests that the experimental groups were acquiring some suppression to the added (B) stimulus. If compound conditioning had been continued for a longer period, then perhaps an attenuated blocking effect might have been found. In addition, it was found that the order in which the components of the compound were tested did not affect the results of the test for conditioning to the pretrained (A) stimulus. However, the order of testing did seem to have a strange effect on the results of the test for conditioning to the target (B) stimulus. That is, those groups that received extinction trials with the pretrained (A) stimulus before testing for conditioning to the target (B) stimulus did not show a blocking effect on the first trial of the test for conditioning to B. This occurred largely because the

control group (Group TLC) showed very little conditioning to the target (B) stimulus, especially in the last 60 sec of the trace interval.

CHAPTER VII

GENERAL DISCUSSION

Previous research on blocking has typically involved the use of forward delay conditioning procedures and simultaneous compounds. The experiments reported here have extended the generality of the blocking phenomenon to trace conditioning procedures and serial compounds. Specifically, three different types of compounds were studied; serial compounds in which stimulus A preceded stimulus B, serial compounds in which stimulus B preceded stimulus A, and simultaneous compounds in which A and B occurred simultaneously. Blocking was observed regardless of the type of compound used.

While indicating that the blocking phenomenon is indeed general, however, the studies found no support for some predictions from the discrepancy model of conditioning (Rescorla & Wagner, 1972). Specifically, in Experiment 4, although different levels of conditioning to the pretrained (A) stimulus were found in the experimental groups, no differences in conditioning to the added (B) stimulus were found for these same groups in testing. In addition, in Experiments

1, 4, and 5, although a difference existed in the conditioning exhibited to the added (B) stimulus for the experimental as compared to the control groups (i. e., blocking occurred), when the pretrained (A) stimulus was tested, no difference in conditioning to A between these same groups was found. Thus, an inverse relationship between conditioning to the two elements of the compound was not found. Conditioning to the pretrained (A) stimulus has rarely been assessed in testing. However, two of these rare assessments (Cheatle & Rudy, 1978; Vom Saal & Jenkins, 1970) also found no evidence of such an inverse relationship. These findings are hard to reconcile with the discrepancy model of conditioning.

The failure of the present series of experiments to find support for the inverse hypothesis can be explained by the discrepancy model if differences in salience between stimulus A and B existed. As discussed on pages 22 through 24, if A and B are equal in salience then, in the control groups of a blocking procedure, $V_A = V_B = \lambda / 2$ at the end of compound conditioning. However, if stimulus A is more salient than stimulus B, then, for the control groups, $V_A > V_B$ or

$V_A > \lambda/2$ at the end of compound conditioning. For the experimental groups, $V_A = \lambda$ and $V_B = 0$ regardless of the salience of A and B. Therefore, if stimulus A is more salient than stimulus B, the difference in V_A for the experimental and control groups is less than if stimulus A and B were of equal salience. Furthermore, the greater the differences in the salience of A and B, the less will be the difference between the experimental and control groups with respect to conditioning to A. In order to test this hypothesis, a study could be run in the same laboratory where the less salient stimulus (light) serves as A and the more salient stimulus (tone) serves as B. This could cause both an enhanced blocking effect and an enhanced difference between the experimental and control groups in tests for conditioning to the A stimulus.

The fifth experiment reported here showed that blocking could occur even when the serial compound used involved an embedded second-order conditioning paradigm. Shortly after Experiment 5 was completed, a similar study was reported by Cheatle and Rudy (1978). Their results confirmed the results of Experiment 5 with a vastly different procedure, odor-aversion in neonatal rats. However, perhaps the more

interesting aspect of the Cheattle and Rudy study was that they found a blocking effect using only one compound trial. This result argues strongly against the notion of Mackintosh (1975a, 1975b) that no blocking occurs on the first trial of compound conditioning. In addition, as discussed on page 65, Experiment 5 showed that conditioning to the added stimulus (B) increased across trials during compound conditioning in the experimental groups. This result argues against Mackintosh's notion that subjects "learn to ignore" the added stimulus (B) after the first compound trial. Previous evidence used to support Mackintosh's position came from studies involving simultaneous compounds. The evidence from Experiment 5 here in conjunction with the results of Cheattle and Rudy (1978) suggest that Mackintosh's observations cannot be extended to certain types of preparations and compounds.

The increase in conditioning to the added (B) stimulus during compound (AB) conditioning that occurred in Experiment 5 (Figure 19) could be a result of either first-order or second-order conditioning. The data of Cheattle and Rudy suggest that second-order conditioning does not occur when a serial compound of this type is followed closely in time by a US.

They directly compared groups for which a serial compound was followed immediately by the US, followed by the US only after a long time interval, or not followed by the US at all. They found that when the US occurred shortly after the compound, blocking occurred, while, if no US occurred or the US occurred long after the compound, second-order conditioning was observed. They concluded that the presence of the US shortly after the compound disrupts rehearsal of the second-order association of the two elements of the compound. However, since Cheattle and Rudy used a preparation where only one trial of compound conditioning occurred, the possibility remains that second-order conditioning was not eliminated but only retarded in their blocking group. Thus, the increase in conditioning to the added B stimulus seen in Experiment 5 could be a result of retarded second-order conditioning. Alternatively, the possibility of first-order conditioning can not be ruled out. A choice between these two alternatives is not possible without further research.

Another unexpected finding of Experiment 5 was the lack of suppression shown by Group TLC in testing for conditioning to the added stimulus (B). Again,

a complete explanation of the result is not possible without further research, however, the result seems best explained by some of the information processing notions of Wagner (1976). According to Wagner, once conditioning has occurred, when a conditioned excitor is presented, a representation of the US associated with it is retrieved from memory. In this case, the argument would be that, in testing for conditioning to the added stimulus (B), the cue of the light plus some temporal cue (43 sec) caused the retrieval from memory of the tone representation. Since the tone was previously extinguished for Group TLC, no US (or at most, a degraded US) representation was associated with it and, therefore, suppression was alleviated.

In summary, this series of experiments answered most of the questions that it was designed to answer. That is, blocking can occur in trace conditioning procedures with serial as well as simultaneous compounds, apparently regardless of the order of presentation of the elements of the compound. In addition, these experiments raised some questions about the sensitivity of the discrepancy model with respect to manipulations of the strength of conditioning of the pretrained (A) stimulus in blocking procedures;

and some of the results could not be adequately explained by the model. Several of the unexpected outcomes of these studies suggest future research.

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Appendix

Tables 5-107.

These tables display the data from Experiments 1, 2, 3, and 4. Tables 5-9, 30-37, 58-62, and 83-87 show the suppression ratios, pre-CS response rates, and during-CS response rates for each subject on each trial of A-pretraining (Stage 1). Tables 10-17, 38-45, 63-70, and 88-95 show the suppression ratios, pre-CS response rates, and during-CS response rates for each subject on each trial of AB-compound training (Stage 2). Tables 18-23, 46-51, 71-76, and 96-101 display the suppression ratios, pre-CS response rates, and during-CS response rates for each subject on each trial of the test for conditioning to the target light (B) stimulus (Stage 3). Tables 24-29, 52-57, 77-82, and 102-107 show the suppression ratios, pre-CS response rates, and during-CS response rates for each subject on each trial of the test for conditioning to the pretrained tone (A) stimulus (Stage 4).

Tables 108-136.

These tables display the data from Experiment 5. Tables 108-110 show the suppression ratios, pre-CS response rates, and during-CS response rates for each subject on each trial of A-pretraining (Stage 1).

Tables 111-120 show the suppression ratios, pre-CS response rates, and during-CS response rates for each subject on each trial of AB-compound training (Stage 2). Tables 121-130 show the suppression ratios, pre-CS response rates, and during-CS response rates for each subject on each trial of the test for conditioning to the target light (B) stimulus (Stage 3 for Groups LTE and LTC, and Stage 4 for Groups TLE and TLC). Tables 131-136 show the suppression ratios, pre-CS response rates, and during-CS response rates for each subject on each trial of the test for conditioning to the pretrained tone (A) stimulus (Stage 4 for Groups LTE and LTC, and Stage 3 for Groups TLE and TLC).

Table 5

SURFET	STAGE 1: STUDY 1 SUPPRESSION RATIO																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
620.1	.50	.51	.49	.49	.43	.45	.44	.30	.36	.46	.46	.21	.30	.50	.31	.37	.10	.47	.16	.78
620.2	.42	.50	.50	.00	.00	.00	.00	.00	.00	.99	.00	.00	.00	.00	.47	.53	.00	.00	.00	.00
620.3	.42	.58	.45	.39	.20	.47	.51	.40	.46	.20	.45	.25	.13	.25	.49	.17	.46	.25	.67	.16
620.4	.45	.62	.41	.42	.14	.43	.46	.19	.07	.00	.50	.60	.30	.00	.46	.55	.17	.23	.31	.24
620.5	.45	.40	.53	.40	.33	.30	.35	.44	.17	.36	.46	.42	.07	.45	.54	.53	.30	.47	.42	.12
620.6	.46	.44	.40	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.33	.37
620.7	.51	.37	.50	.60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.90	.00	.00
620.8	.55	.50	.51	.39	.44	.44	.41	.35	.20	.60	.46	.30	.00	.69	.00	.43	.00	.25	.64	.61
1020.1	.53	.46	.56	.37	.11	.30	.55	.32	.10	.34	.31	.35	.00	.42	.44	.30	.16	.22	.00	.00
1020.2	.50	.50	.61	.24	.06	.00	.00	.00	.00	.00	.00	.00	.00	.31	.51	.56	.30	.54	.10	.41
1020.3	.40	.52	.49	.45	.30	.44	.53	.00	.00	.00	.75	.00	.00	.67	.30	.05	.75	.17	.21	.30
1020.4	.56	.46	.42	.47	.33	.40	.40	.56	.14	.12	.56	.40	.16	.43	.32	.31	.00	.45	.31	.30
1020.5	.36	.56	.54	.60	.31	.45	.53	.69	.00	.51	.39	.36	.00	.40	.40	.85	.00	.35	.31	.30
1020.6	.55	.59	.51	.54	.26	.00	.63	.00	.00	.00	.00	.00	.00	.00	.40	.32	.55	.36	.23	.10
1020.7	.25	.52	.47	.54	.52	.52	.54	.54	.45	.47	.47	.53	.46	.60	.52	.41	.40	.45	.43	.40
1020.8	.57	.51	.55	.42	.14	.32	.00	.00	.09	.00	.00	.00	.00	.30	.66	.15	.00	.39	.35	.46

Table 6

SUBJECT	STAGE 1: STUDY 1 PRE-CS RATE FOR 3 MIN																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
62E1	94.	99.	105.	112.	100.	72.	64.	56.	85.	53.	39.	55.	98.	63.	59.	41.	84.	73.	71.	59.
62E2	37.	30.	6.	0.	0.	3.	0.	0.	0.	0.	0.	24.	0.	0.	10.	0.	0.	0.	0.	0.
62E3	29.	30.	37.	52.	39.	47.	49.	53.	25.	12.	18.	18.	41.	27.	25.	15.	25.	10.	16.	14.
62E4	58.	42.	44.	49.	56.	16.	21.	13.	42.	4.	3.	4.	7.	4.	7.	10.	23.	31.	41.	50.
62E5	73.	61.	57.	55.	60.	53.	79.	54.	45.	37.	43.	45.	40.	40.	33.	35.	48.	40.	54.	40.
62E6	53.	31.	27.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	6.	30.
62E7	52.	52.	21.	12.	0.	0.	0.	0.	0.	0.	14.	1.	3.	40.	0.	0.	0.	0.	0.	1.
62E8	39.	18.	26.	51.	45.	46.	35.	28.	23.	6.	14.	15.	14.	4.	7.	4.	3.	2.	1.	17.
100E1	72.	89.	58.	52.	73.	40.	35.	25.	54.	23.	20.	17.	33.	41.	19.	29.	61.	47.	15.	20.
100E2	65.	50.	45.	39.	44.	17.	1.	0.	5.	0.	0.	0.	6.	53.	66.	55.	5.	18.	47.	46.
100E3	63.	53.	44.	54.	63.	46.	8.	0.	1.	20.	1.	0.	2.	3.	5.	63.	2.	17.	11.	19.
100E4	52.	28.	37.	48.	55.	36.	36.	43.	73.	22.	36.	64.	46.	63.	82.	67.	56.	55.	51.	72.
100E5	101.	71.	65.	57.	115.	86.	50.	12.	101.	20.	47.	37.	94.	61.	9.	14.	41.	33.	20.	13.
100E6	41.	37.	57.	13.	42.	11.	7.	1.	43.	0.	0.	1.	0.	0.	68.	13.	10.	47.	30.	26.
100E7	90.	81.	85.	75.	86.	98.	83.	95.	77.	64.	71.	67.	70.	40.	42.	55.	65.	44.	58.	51.
100E8	40.	44.	35.	38.	30.	19.	0.	15.	32.	0.	0.	0.	13.	5.	11.	17.	0.	14.	11.	7.

Table 7

SUBJECT	STAGE 1: STUDY 1 DURING CS RATE FOR 1 MIN TRIAL																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
62E1	31.	34.	33.	36.	25.	20.	17.	8.	16.	15.	11.	5.	14.	21.	9.	8.	6.	23.	20.	11.
62E2	9.	10.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	0.	3.	3.	0.	0.	0.	0.
62E3	7.	14.	15.	11.	8.	14.	17.	12.	7.	1.	5.	2.	2.	3.	8.	1.	7.	2.	4.	4.
62E4	16.	15.	10.	12.	3.	4.	6.	1.	1.	0.	1.	2.	1.	0.	2.	4.	1.	3.	6.	6.
62E5	20.	19.	21.	17.	10.	11.	14.	14.	3.	7.	12.	11.	1.	13.	13.	13.	10.	14.	13.	14.
62E6	15.	8.	6.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	5.
62E7	10.	10.	7.	6.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
62E8	7.	6.	9.	11.	12.	12.	8.	5.	3.	3.	4.	3.	0.	3.	0.	1.	0.	2.	5.	2.
102E1	27.	23.	11.	10.	3.	0.	14.	4.	2.	4.	3.	3.	0.	10.	5.	6.	4.	4.	2.	0.
102E2	30.	17.	18.	4.	1.	0.	0.	0.	0.	0.	0.	0.	0.	8.	23.	23.	1.	7.	2.	12.
102E3	21.	17.	14.	15.	9.	12.	3.	0.	0.	0.	1.	0.	0.	2.	1.	1.	7.	17.	2.	4.
102E4	22.	0.	9.	14.	9.	11.	0.	10.	4.	1.	15.	20.	3.	16.	13.	10.	0.	15.	13.	15.
102E5	19.	30.	25.	29.	17.	23.	19.	9.	0.	7.	10.	7.	0.	19.	2.	97.	0.	6.	3.	2.
102E6	17.	18.	13.	5.	5.	0.	4.	0.	0.	0.	0.	0.	0.	0.	15.	2.	4.	8.	3.	7.
102E7	37.	29.	25.	29.	31.	36.	32.	37.	21.	19.	21.	25.	20.	20.	15.	13.	21.	17.	14.	17.
102E8	18.	15.	14.	9.	2.	3.	0.	0.	1.	0.	0.	0.	0.	1.	7.	1.	0.	3.	2.	2.

Table 8

SUBJECT	STAGE 1: STUDY 1 SUPPRESSION RATIO, 45 SEC TRIAL																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
105E1	.50	.50	.50	.50	.05	.33	.36	.32	.07	.00	.29	.00	.00	.09	.30	.29	.06	.22	.21	.17
105E2	.50	.50	.50	.50	.00	.00	.00	.00	.00	.00	.00	.00	.00	.31	.42	.42	.00	.31	.40	.50
105E3	.50	.50	.50	.50	.11	.41	.50	.00	.00	.00	.00	.00	.00	.00	.71	.06	.00	.68	.59	.56
105E4	.50	.50	.50	.50	.34	.44	.47	.58	.10	.15	.63	.27	.15	.31	.20	.26	.07	.23	.44	.25
105E5	.50	.50	.50	.50	.40	.44	.36	.70	.04	.58	.34	.35	.04	.34	.69	.22	.00	.46	.38	.24
105E6	.50	.50	.50	.50	.28	.00	.00	.80	.22	.00	.99	.00	.00	.00	.29	.00	.71	.22	.21	.30
105E7	.50	.50	.50	.50	.48	.45	.51	.46	.44	.41	.44	.50	.49	.58	.40	.49	.43	.54	.46	.47
105E8	.50	.50	.50	.50	.17	.39	.00	.52	.00	.00	.00	.00	.00	.00	.00	.32	.00	.36	.42	.36

Table 9

SUBJECT	STAGE 1: STUDY 1 DURING CS RATE FOR 45 SEC																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
105F1	1.	1.	1.	1.	1.	1.	5.	3.	1.	0.	2.	0.	0.	1.	2.	3.	1.	3.	1.	1.
105J2	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	6.	12.	10.	0.	2.	7.	16.
105E3	1.	1.	1.	1.	2.	8.	2.	0.	0.	0.	0.	0.	0.	0.	3.	1.	0.	9.	4.	6.
105E4	1.	1.	1.	1.	7.	7.	8.	15.	2.	1.	15.	6.	2.	7.	8.	6.	1.	4.	10.	6.
105E5	1.	1.	1.	1.	19.	17.	7.	7.	1.	7.	6.	5.	1.	8.	5.	1.	0.	7.	3.	1.
105E6	1.	1.	1.	1.	4.	0.	0.	1.	3.	0.	2.	0.	0.	0.	7.	0.	6.	3.	2.	4.
105E7	1.	1.	1.	1.	20.	20.	22.	20.	15.	11.	14.	17.	17.	14.	7.	13.	13.	13.	12.	12.
105E8	1.	1.	1.	1.	2.	3.	0.	4.	0.	0.	0.	0.	0.	0.	0.	2.	0.	2.	2.	1.

Table 10

SUBJECT	STAGE 2: STUDY 1 SUPPRESSION RATIO											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	.15	.00	.05	.13	.09	.34	.13	.24	.11	.28	.27	.38
62E2	.00	.00	.44	.19	.75	.88	.59	.54	.55	.46	.57	.59
62E3	.08	.18	.18	.23	.20	.26	.30	.42	.47	.45	.56	.60
62E4	.00	.00	.11	.38	.00	.18	.18	.22	.05	.00	.33	.38
62E5	.29	.43	.45	.45	.20	.42	.46	.41	.36	.36	.48	.42
62E6	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00	.00
62E7	.00	.58	.99	.00	.00	.07	.00	.00	.00	.00	.00	.00
62E8	.00	.99	.77	.49	.00	.99	.17	.00	.00	.00	.00	.28
62C1	.47	.40	.27	.00	.00	.00	.15	.00	.00	.00	.20	.21
62C2	.50	.51	.50	.56	.00	.18	.39	.00	.00	.00	.00	.86
62C3	.54	.38	.00	.00	.00	.00	.00	.00	.00	.00	.12	.00
62C4	.49	.35	.40	.39	.36	.13	.29	.22	.00	.18	.17	.21
62C5	.39	.47	.24	.36	.00	.20	.13	.00	.00	.10	.43	.00
62C6	.46	.41	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
62C7	.47	.30	.31	.00	.00	.00	.00	.99	.00	.00	.00	.00
62C8	.51	.29	.15	.23	.00	.00	.00	.00	.00	.99	.00	.00

Table 11

STAGE 2: STUDY 1 PRE-CS RATE FOR 3 MIN

SUBJECT	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	100.	71.	52.	21.	116.	82.	80.	74.	74.	47.	57.	53.
62E2	0.	4.	15.	13.	1.	2.	21.	41.	10.	21.	18.	23.
62E3	33.	14.	14.	10.	35.	17.	21.	33.	20.	18.	19.	12.
62E4	67.	32.	48.	50.	68.	70.	54.	52.	62.	38.	43.	29.
62E5	67.	63.	44.	63.	70.	61.	77.	55.	64.	47.	52.	67.
62E6	0.	0.	0.	0.	8.	0.	0.	55.	0.	0.	0.	0.
62E7	13.	30.	0.	14.	60.	39.	21.	3.	6.	2.	1.	0.
62E8	0.	0.	8.	22.	9.	0.	59.	8.	30.	2.	0.	31.
62C1	126.	77.	58.	7.	108.	13.	17.	9.	59.	11.	24.	11.
62C2	53.	38.	39.	33.	44.	14.	5.	1.	2.	0.	0.	2.
62C3	38.	29.	12.	0.	13.	0.	0.	0.	0.	0.	22.	0.
62C4	74.	62.	45.	51.	81.	84.	85.	42.	68.	67.	30.	56.
62C5	143.	135.	144.	166.	186.	204.	77.	14.	158.	107.	81.	8.
62C6	28.	17.	4.	0.	0.	9.	3.	0.	0.	0.	0.	0.
62C7	51.	49.	27.	10.	29.	0.	0.	0.	40.	0.	0.	2.
62C8	35.	60.	53.	30.	66.	8.	12.	2.	0.	0.	1.	0.

Table 12

SUBJECT	STAGE 2: STUDY 1 DURING CS RATE FOR 1 MIN											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	6.	0.	1.	1.	4.	14.	4.	8.	3.	6.	7.	11.
62E2	0.	0.	4.	1.	1.	5.	10.	16.	4.	6.	8.	11.
62E3	1.	1.	1.	1.	3.	2.	3.	8.	6.	5.	8.	6.
62E4	0.	0.	2.	10.	0.	5.	4.	5.	1.	0.	7.	6.
62E5	9.	16.	12.	17.	6.	15.	22.	13.	12.	9.	16.	16.
62E6	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.
62E7	0.	14.	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
62E8	0.	2.	9.	7.	0.	2.	4.	0.	0.	0.	0.	4.
62C1	37.	17.	7.	0.	00.	0.	1.	0.	0.	0.	2.	1.
62C2	18.	13.	13.	14.	0.	1.	1.	0.	0.	0.	0.	4.
62C3	15.	6.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
62C4	24.	11.	10.	11.	15.	4.	11.	4.	0.	5.	2.	5.
62C5	30.	40.	15.	31.	0.	17.	4.	0.	0.	4.	20.	0.
62C6	8.	4.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
62C7	15.	7.	4.	0.	0.	0.	0.	1.	0.	0.	0.	0.
62C8	12.	8.	3.	3.	0.	0.	0.	0.	0.	1.	0.	0.

Table 13

STAGE 2: STUDY 1 SUPPRESSION RATIO

SUBJECT	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	.20	.79	.62	.31	.08	.53	.34	.36	.00	.33	.33	.42
105E2	.00	.31	.39	.53	.14	.65	.45	.55	.12	.58	.50	.55
105E3	.79	.60	.56	.43	.30	.43	.00	.60	.00	.00	.00	.00
105E4	.00	.33	.50	.46	.05	.50	.55	.53	.10	.49	.38	.48
105E5	.11	.70	.65	.70	.00	.60	.62	.25	.00	.74	.18	.61
105E6	.42	.35	.46	.48	.50	.32	.44	.63	.33	.75	.31	.38
105E7	.49	.44	.41	.54	.42	.56	.45	.44	.49	.46	.41	.49
105E8	.20	.86	.99	.60	.00	.00	.68	.64	.25	.48	.62	.60
105C1	.48	.48	.38	.10	.04	.38	.37	.24	.14	.00	.30	.00
105C2	.34	.47	.00	.58	.26	.00	.16	.27	.00	.00	.99	.21
105C3	.44	.40	.49	.63	.06	.00	.00	.00	.00	.00	.30	.27
105C4	.37	.43	.34	.46	.21	.38	.63	.55	.09	.30	.43	.00
105C5	.37	.29	.00	.00	.00	.00	.00	.38	.00	.34	.26	.55
105C6	.32	.30	.10	.24	.00	.00	.00	.00	.00	.00	.00	.98
105C7	.28	.29	.42	.68	.06	.51	.35	.00	.00	.47	.00	.99
105C8	.44	.14	.00	.00	.00	.27	.68	.42	.75	.16	.61	.48

Table 14

STAGE 2: STUDY 1 PRE-CS RATE FOR 3 MIN

SUBJECT	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	71.	7.	15.	20.	37.	27.	29.	32.	43.	30.	48.	42.
105E2	16.	46.	38.	35.	37.	19.	29.	37.	23.	11.	33.	30.
105E3	7.	4.	7.	4.	7.	4.	4.	2.	1.	0.	1.	0.
105E4	54.	37.	39.	42.	56.	51.	41.	50.	52.	56.	59.	51.
105E5	95.	13.	21.	13.	108.	4.	11.	27.	113.	18.	53.	34.
105E6	33.	11.	7.	32.	12.	13.	27.	25.	24.	2.	41.	25.
105E7	79.	45.	64.	54.	82.	37.	40.	45.	63.	49.	44.	38.
105E8	12.	1.	0.	6.	6.	2.	7.	5.	9.	13.	15.	14.
105C1	92.	66.	25.	27.	82.	79.	76.	68.	71.	64.	55.	56.
105C2	69.	50.	26.	11.	69.	10.	47.	32.	61.	0.	0.	11.
105C3	79.	55.	31.	35.	92.	30.	5.	7.	63.	8.	42.	8.
105C4	124.	86.	47.	14.	112.	29.	16.	35.	96.	28.	12.	6.
105C5	62.	60.	4.	0.	68.	68.	76.	35.	70.	57.	43.	20.
105C6	119.	118.	107.	56.	116.	74.	49.	54.	21.	13.	15.	1.
105C7	46.	51.	33.	13.	45.	20.	17.	0.	15.	17.	26.	0.
105C8	49.	38.	17.	24.	66.	41.	13.	21.	1.	16.	19.	32.

Table 15

SUBJECT	STAGE 2: STUDY 1 DURING CS RATE FOR 1 MIN											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	6.	9.	8.	3.	1.	10.	5.	6.	0.	5.	8.	10.
105E2	0.	7.	8.	13.	2.	12.	8.	15.	1.	5.	11.	12.
105E3	9.	2.	3.	1.	1.	1.	0.	1.	0.	0.	0.	0.
105E4	0.	6.	13.	12.	1.	17.	17.	19.	2.	18.	12.	16.
105E5	4.	10.	13.	10.	0.	2.	6.	3.	0.	17.	4.	18.
105E6	8.	2.	2.	10.	4.	2.	7.	14.	4.	2.	6.	5.
105E7	25.	12.	15.	21.	20.	16.	11.	12.	20.	14.	10.	12.
105E8	1.	2.	1.	3.	0.	0.	5.	3.	1.	4.	8.	7.
105C1	28.	20.	5.	1.	1.	16.	15.	7.	4.	0.	8.	0.
105C2	12.	15.	0.	5.	8.	0.	3.	4.	0.	0.	3.	1.
105C3	21.	12.	10.	20.	2.	0.	0.	0.	0.	0.	6.	1.
105C4	24.	22.	8.	4.	10.	6.	9.	14.	3.	4.	3.	0.
105C5	12.	8.	0.	0.	0.	0.	0.	7.	0.	10.	5.	8.
105C6	19.	17.	4.	6.	0.	0.	0.	0.	0.	0.	0.	15.
105C7	6.	7.	8.	9.	1.	7.	3.	0.	0.	5.	0.	5.
105C8	13.	2.	0.	0.	0.	5.	9.	5.	1.	1.	10.	10.

Table 16

SUBJECT	STAGE 2: STUDY 1 SUPPRESSION RATIO, 45 SEC											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	.05	.00	.21	.17	.00	.23	.29	.33	.09	.12	.20	.28
105E2	.00	.30	.42	.60	.10	.72	.49	.49	.15	.65	.38	.44
105E3	.63	.00	.36	.00	.36	.50	.00	.00	.00	.00	.00	.00
105E4	.00	.00	.34	.32	.18	.32	.47	.42	.07	.44	.35	.48
105E5	.08	.55	.53	.38	.04	.50	.65	.47	.00	.40	.31	.56
105E6	.20	.00	.36	.33	.25	.55	.47	.66	.33	.86	.33	.49
105E7	.48	.49	.48	.49	.45	.52	.44	.47	.43	.33	.15	.46
105E8	.00	.80	.00	.57	.00	.00	.63	.00	.00	.48	.57	.22
105C1	.47	.33	.62	.37	.25	.43	.41	.41	.14	.30	.37	.33
105C2	.41	.42	.32	.74	.32	.71	.20	.11	.00	.00	.00	.42
105C3	.38	.27	.51	.58	.12	.12	.00	.00	.06	.00	.49	.33
105C4	.24	.19	.20	.53	.13	.29	.20	.00	.31	.22	.25	.00
105C5	.46	.06	.00	.00	.00	.00	.00	.19	.00	.00	.32	.44
105C6	.36	.21	.18	.39	.00	.00	.00	.00	.00	.00	.21	.89
105C7	.44	.50	.42	.68	.44	.50	.41	.00	.35	.48	.52	.99
105C8	.29	.17	.00	.00	.00	.33	.61	.60	.80	.00	.56	.58

Table 17

STAGE 2: STUDY 1 DURING CS RATE FOR 45 SEC

SURJECT	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	1.	0.	1.	1.	0.	2.	3.	4.	1.	1.	3.	4.
105E2	0.	5.	7.	13.	1.	12.	7.	9.	1.	5.	5.	6.
105E3	3.	0.	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.
105E4	0.	0.	5.	5.	3.	6.	9.	9.	1.	11.	8.	12.
105E5	2.	4.	6.	2.	1.	1.	5.	6.	0.	3.	6.	11.
105E6	2.	0.	1.	4.	1.	4.	6.	12.	3.	3.	5.	6.
105E7	18.	11.	15.	13.	17.	10.	8.	10.	12.	6.	2.	8.
105E8	0.	1.	0.	2.	0.	0.	3.	0.	0.	3.	5.	1.
105C1	20.	8.	10.	4.	7.	15.	13.	12.	3.	7.	8.	7.
105C2	12.	9.	3.	8.	8.	6.	3.	1.	0.	0.	0.	2.
105C3	12.	5.	8.	12.	3.	1.	0.	0.	1.	0.	10.	1.
105C4	10.	5.	3.	4.	4.	3.	1.	0.	11.	2.	1.	0.
105C5	13.	1.	0.	0.	0.	0.	0.	2.	0.	0.	5.	4.
105C6	17.	8.	6.	9.	0.	0.	0.	0.	0.	0.	1.	2.
105C7	9.	13.	6.	7.	9.	5.	3.	0.	2.	4.	7.	2.
105C8	5.	2.	0.	0.	0.	5.	5.	8.	1.	0.	6.	11.

Table 18

SUBJECT	STAGE 3: STUDY 1 SUPPRESSION RATIO					
	1	2	3	TRIAL 4	5	6
62E1	.00	.03	.49	.28	.24	.20
62E2	.51	.25	.48	.56	.70	.51
62E3	.42	.43	.49	.25	.14	.00
62E4	.40	.39	.49	.50	.16	.05
62E5	.49	.37	.57	.40	.31	.22
62E6	.08	.73	.00	.00	.00	.00
62E7	.49	.57	.00	.15	.14	.14
62E8	.45	.33	.53	.40	.45	.16
62C1	.00	.06	.05	.07	.00	.00
62C2	.56	.05	.00	.00	.00	.00
62C3	.46	.16	.09	.00	.18	.09
62C4	.03	.00	.07	.03	.03	.03
62C5	.44	.45	.52	.48	.36	.23
62C6	.49	.25	.53	.33	.34	.33
62C7	.10	.20	.50	.00	.00	.00
62C8	.14	.08	.13	.00	.00	.00

Table 19

SUBJECT	STAGE 3: STUDY 1 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
62E1	86.	103.	105.	154.	153.	212.
62E2	26.	27.	29.	40.	33.	38.
62E3	41.	43.	40.	53.	37.	31.
62E4	77.	56.	65.	56.	61.	56.
62E5	86.	78.	107.	127.	98.	107.
62E6	35.	10.	0.	42.	41.	63.
62E7	35.	9.	3.	17.	19.	19.
62E8	54.	42.	57.	58.	58.	48.
62C1	116.	45.	115.	154.	113.	139.
62C2	47.	57.	52.	53.	56.	25.
62C3	42.	32.	30.	33.	41.	29.
62C4	103.	8.	84.	95.	84.	101.
62C5	174.	249.	253.	228.	210.	154.
62C6	28.	36.	35.	31.	35.	24.
62C7	54.	73.	42.	38.	56.	50.
62C8	38.	37.	42.	54.	58.	67.

Table 20

SUBJECT	STAGE 3: STUDY 1 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
62E1	0.	1.	34.	20.	16.	18.
62E2	9.	3.	9.	17.	26.	13.
62E3	10.	11.	13.	6.	2.	0.
62E4	17.	12.	21.	19.	4.	1.
62E5	27.	15.	48.	28.	15.	10.
62E6	1.	9.	0.	0.	0.	0.
62E7	11.	4.	0.	1.	1.	1.
62E8	15.	7.	21.	13.	16.	3.
62C1	0.	1.	2.	4.	0.	0.
62C2	20.	1.	0.	0.	0.	0.
62C3	12.	2.	1.	0.	3.	1.
62C4	1.	0.	2.	1.	1.	1.
62C5	46.	69.	90.	69.	40.	15.
62C6	9.	4.	13.	5.	6.	4.
62C7	2.	6.	14.	0.	0.	0.
62C8	2.	1.	2.	0.	0.	0.

Table 21

SUBJECT	STAGE 3: STUDY 1 SUPPRESSION RATIO					
	TRIAL					
	1	2	3	4	5	6
105E1	.48	.30	.10	.24	.15	.11
105E2	.38	.41	.42	.47	.14	.03
105E3	.43	.22	.53	.13	.00	.00
105E4	.44	.43	.45	.59	.49	.36
105E5	.47	.61	.50	.50	.07	.33
105E6	.51	.30	.27	.36	.33	.31
105E7	.49	.46	.18	.51	.28	.07
105E8	.56	.51	.55	.33	.00	.13
105C1	.23	.06	.03	.00	.06	.35
105C2	.06	.00	.00	.19	.06	.20
105C3	.29	.34	.00	.11	.04	.34
105C4	.44	.36	.12	.27	.08	.21
105C5	.49	.33	.38	.49	.19	.32
105C6	.08	.00	.12	.00	.11	.13
105C7	.00	.00	.00	.00	.20	.00
105C8	.46	.18	.06	.05	.17	.00

Table 22

SUBJECT	STAGE 3: STUDY 1 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
105E1	92.	97.	104.	85.	85.	93.
105E2	92.	104.	151.	83.	142.	113.
105E3	76.	84.	93.	79.	73.	77.
105E4	54.	69.	73.	41.	53.	49.
105E5	117.	128.	153.	125.	187.	180.
105E6	65.	57.	56.	49.	56.	66.
105E7	79.	67.	69.	81.	91.	39.
105E8	43.	47.	42.	37.	36.	42.
105C1	70.	92.	92.	113.	87.	77.
105C2	45.	47.	67.	64.	45.	36.
105C3	59.	57.	68.	95.	66.	82.
105C4	147.	101.	107.	95.	100.	69.
105C5	65.	80.	88.	89.	62.	71.
105C6	103.	83.	112.	92.	94.	101.
105C7	63.	15.	37.	80.	36.	47.
105C8	35.	53.	50.	59.	75.	60.

Table 23

SUBJECT	STAGE 3: STUDY 1 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
105E1	28.	14.	4.	9.	5.	4.
105E2	19.	24.	37.	25.	8.	1.
105E3	19.	8.	35.	4.	0.	0.
105E4	14.	17.	20.	20.	17.	9.
105E5	34.	67.	50.	41.	5.	30.
105E6	23.	8.	7.	9.	9.	10.
105E7	25.	19.	5.	28.	12.	1.
105E8	18.	16.	17.	6.	0.	2.
105C1	7.	2.	1.	0.	2.	14.
105C2	1.	0.	0.	5.	1.	3.
105C3	8.	10.	0.	4.	1.	14.
105C4	39.	19.	5.	12.	3.	6.
105C5	21.	13.	18.	28.	5.	11.
105C6	3.	0.	5.	0.	4.	5.
105C7	0.	0.	0.	0.	3.	0.
105C8	10.	4.	1.	1.	5.	0.

Table 24

SUBJECT	STAGE 4: STUDY 1 SUPPRESSION RATIO					
	1	2	3	TRIAL 4	5	6
62E1	.22	.11	.25	.29	.32	.59
62E2	.58	.53	.46	.39	.50	.38
62E3	.00	.07	.29	.18	.32	.35
62E4	.06	.00	.11	.14	.12	.25
62E5	.00	.13	.15	.18	.18	.38
62E6	.00	.00	.04	.00	.00	.23
62E7	.00	.00	.00	.00	.00	.00
62E8	.18	.00	.00	.00	.12	.42
62C1	.02	.29	.00	.01	.26	.35
62C2	.00	.00	.00	.00	.00	.00
62C3	.00	.00	.00	.09	.00	.15
62C4	.00	.00	.08	.26	.48	.50
62C5	.00	.00	.19	.35	.29	.23
62C6	.09	.15	.43	.21	.31	.20
62C7	.00	.00	.07	.06	.02	.19
62C8	.00	.00	.00	.00	.00	.25

Table 25

SUBJECT	STAGE 4: STUDY 1 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
62E1	208.	258.	227.	202.	187.	140.
62E2	26.	29.	43.	23.	24.	10.
62E3	41.	38.	37.	42.	38.	45.
62E4	45.	49.	51.	37.	46.	54.
62E5	124.	126.	122.	147.	111.	90.
62E6	59.	49.	69.	58.	52.	51.
62E7	13.	20.	22.	24.	25.	35.
62E8	53.	65.	46.	39.	68.	42.
62C1	140.	133.	161.	219.	170.	185.
62C2	62.	52.	64.	24.	42.	49.
62C3	42.	30.	28.	31.	25.	35.
62C4	92.	97.	109.	96.	89.	83.
62C5	210.	172.	294.	253.	240.	193.
62C6	29.	33.	36.	44.	33.	36.
62C7	42.	53.	42.	93.	132.	128.
62C8	50.	48.	52.	55.	69.	62.

Table 26

SUBJECT	STAGE 4: STUDY 1 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
62E1	19.	11.	25.	28.	29.	68.
62E2	12.	11.	12.	5.	8.	2.
62E3	0.	1.	5.	3.	6.	8.
62E4	1.	0.	2.	2.	2.	6.
62E5	0.	6.	7.	11.	8.	18.
62E6	0.	0.	1.	0.	0.	5.
62E7	0.	0.	0.	0.	0.	0.
62E8	4.	0.	0.	0.	3.	10.
62C1	1.	18.	0.	1.	20.	33.
62C2	0.	0.	0.	0.	0.	0.
62C3	0.	0.	0.	1.	0.	2.
62C4	0.	0.	3.	11.	27.	28.
62C5	0.	0.	23.	45.	32.	19.
62C6	1.	2.	9.	4.	5.	3.
62C7	0.	0.	1.	2.	1.	10.
62C8	0.	0.	0.	0.	0.	7.

Table 27

SUBJECT	STAGE 4: STUDY 1 SUPPRESSION RATIO					
	TRIAL					
	1	2	3	4	5	6
105E1	.02	.12	.30	.40	.46	.19
105E2	.28	.27	.28	.00	.36	.36
105E3	.00	.00	.00	.00	.00	.00
105E4	.06	.27	.48	.42	.34	.39
105E5	.00	.04	.14	.26	.39	.28
105E6	.00	.23	.22	.37	.26	.21
105E7	.27	.32	.08	.40	.37	.58
105E8	.00	.00	.00	.00	.00	.00
105C1	.13	.05	.46	.51	.43	.39
105C2	.04	.04	.05	.04	.00	.00
105C3	.13	.19	.32	.11	.02	.37
105C4	.12	.27	.43	.45	.24	.53
105C5	.03	.22	.10	.12	.29	.40
105C6	.06	.00	.07	.00	.12	.34
105C7	.11	.00	.03	.17	.27	.40
105C8	.07	.15	.49	.12	.45	.56

Table 28

SUBJECT	STAGE 4: STUDY 1 PRE-CS RATE FOR 3 MIN					
	TRIAL					
	1	2	3	4	5	6
105E1	132.	91.	105.	129.	93.	155.
105E2	69.	95.	106.	72.	101.	76.
105E3	66.	78.	65.	86.	69.	57.
105E4	50.	40.	29.	42.	47.	43.
105E5	174.	210.	146.	161.	207.	193.
105E6	67.	92.	64.	76.	67.	77.
105E7	65.	51.	65.	68.	126.	116.
105E8	41.	38.	49.	42.	40.	48.
105C1	98.	107.	92.	95.	103.	104.
105C2	64.	78.	63.	64.	61.	56.
105C3	60.	105.	76.	95.	156.	104.
105C4	88.	91.	73.	91.	96.	97.
105C5	92.	76.	78.	67.	94.	85.
105C6	136.	117.	119.	109.	106.	95.
105C7	72.	72.	84.	74.	88.	105.
105C8	81.	70.	57.	66.	59.	47.

Table 29

SUBJECT	STAGE 4: STUDY 1 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
105E1	1.	4.	15.	29.	26.	12.
105E2	9.	12.	14.	0.	19.	14.
105E3	0.	0.	0.	0.	0.	0.
105E4	1.	5.	9.	10.	8.	9.
105E5	0.	3.	8.	19.	45.	25.
105E6	0.	9.	6.	15.	8.	7.
105E7	8.	8.	2.	15.	25.	53.
105E8	0.	0.	0.	0.	0.	0.
105C1	5.	2.	26.	33.	26.	22.
105C2	1.	1.	1.	1.	0.	0.
105C3	3.	8.	12.	4.	1.	20.
105C4	4.	11.	18.	25.	10.	36.
105C5	1.	7.	3.	3.	13.	19.
105C6	3.	0.	3.	0.	5.	16.
105C7	3.	0.	1.	5.	11.	23.
105C8	2.	4.	18.	3.	16.	20.

Table 30

SUBJECT	STAGE 1: STUDY 2 SUPPRESSION RATIO																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
62E1	.48	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28	.00	.00	.00	.71	.00	.39	.60	.75
62E2	.37	.26	.00	.00	.17	.21	.30	.00	.04	.00	.16	.00	.00	.00	.27	.23	.00	.00	.19	.07
62E3	.41	.40	.12	.33	.04	.60	.32	.00	.05	.00	.00	.19	.00	.00	.15	.00	.00	.07	.08	.10
62E4	.47	.43	.48	.45	.26	.21	.52	.38	.27	.33	.33	.21	.00	.00	.09	.20	.00	.00	.00	.25
62E5	.51	.46	.45	.39	.31	.11	.23	.16	.03	.18	.06	.13	.00	.09	.00	.35	.00	.61	.31	.10
62E6	.57	.61	.47	.47	.46	.51	.41	.41	.43	.42	.44	.52	.33	.58	.56	.55	.20	.27	.47	.40
62E7	.55	.26	.33	.29	.00	.00	.00	.23	.00	.00	.00	.00	.00	.00	.00	.20	.00	.16	.23	.24
62E8	.60	.48	.38	.31	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00	.13	.00	.17	.32	.16
105E1	.39	.43	.48	.41	.51	.29	.29	.60	.26	.50	.27	.39	.19	.46	.27	.47	.34	.44	.23	.36
105E2	.49	.50	.00	.38	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.33	.00	.14	.00	.19
105E3	.58	.51	.45	.50	.39	.45	.49	.52	.38	.10	.38	.99	.28	.34	.31	.63	.15	.35	.35	.39
105E4	.50	.59	.54	.47	.49	.34	.23	.38	.28	.00	.00	.00	.00	.09	.33	.68	.24	.00	.60	.60
105E5	.44	.57	.50	.47	.55	.46	.52	.48	.37	.45	.35	.31	.11	.21	.33	.46	.18	.28	.37	.52
105E6	.49	.40	.49	.57	.46	.49	.48	.41	.36	.51	.45	.45	.00	.54	.46	.27	.06	.30	.49	.46
105E7	.47	.41	.43	.52	.41	.55	.39	.52	.34	.53	.50	.42	.41	.54	.46	.54	.38	.38	.49	.58
105E8	.47	.46	.50	.52	.00	.00	.00	.25	.00	.00	.43	.19	.00	.00	.29	.00	.00	.09	.33	.00

Table 31

STAGE 11 STUDY 2 PRE-CS RATE FOR 3 MIN

SUBJECT	TRIAL																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
62E1	59.	91.	78.	64.	74.	8.	0.	0.	4.	0.	0.	23.	8.	0.	16.	5.	0.	14.	8.	6.
62E2	101.	52.	0.	2.	71.	58.	28.	8.	65.	21.	16.	5.	46.	10.	32.	10.	42.	37.	26.	38.
62E3	52.	49.	45.	37.	71.	12.	13.	7.	52.	0.	18.	13.	67.	10.	53.	6.	61.	40.	37.	26.
62E4	40.	39.	36.	33.	34.	22.	33.	20.	16.	12.	6.	11.	8.	26.	29.	12.	29.	20.	19.	18.
62E5	67.	68.	90.	90.	85.	76.	70.	77.	105.	53.	87.	98.	45.	63.	60.	22.	45.	21.	47.	55.
62E6	55.	39.	57.	54.	43.	41.	61.	57.	36.	45.	49.	55.	24.	35.	42.	34.	37.	40.	48.	41.
62E7	37.	34.	31.	30.	27.	24.	30.	50.	5.	7.	16.	33.	18.	22.	20.	12.	27.	16.	20.	20.
62E8	34.	33.	30.	41.	40.	0.	30.	23.	31.	20.	17.	31.	17.	14.	24.	20.	29.	15.	13.	16.
105E1	38.	43.	53.	26.	34.	22.	15.	2.	25.	3.	24.	66.	39.	52.	58.	44.	40.	35.	40.	47.
105E2	91.	65.	20.	45.	26.	4.	10.	0.	40.	0.	0.	2.	65.	8.	7.	6.	85.	18.	31.	13.
105E3	37.	38.	58.	51.	62.	52.	40.	28.	60.	26.	20.	0.	46.	29.	27.	9.	67.	50.	56.	43.
105E4	105.	104.	73.	92.	73.	82.	40.	65.	79.	2.	0.	4.	35.	32.	12.	10.	39.	8.	2.	2.
105E5	80.	62.	96.	95.	67.	89.	77.	77.	98.	58.	50.	47.	75.	91.	74.	49.	94.	79.	62.	45.
105E6	56.	73.	71.	57.	56.	47.	49.	56.	48.	38.	41.	36.	50.	33.	46.	41.	48.	43.	41.	49.
105E7	127.	119.	129.	124.	121.	59.	70.	64.	87.	50.	72.	79.	83.	75.	90.	73.	108.	73.	84.	59.
105E8	72.	70.	58.	36.	70.	40.	30.	18.	35.	2.	4.	13.	19.	11.	22.	20.	42.	32.	12.	21.

Table 32

SUBJECT	STAGE 1: STUDY 2 DURING CS RATE FOR 1 MIN TRIAL																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
62E1	18.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.	4.	0.	3.	4.	6.
62E2	20.	6.	0.	0.	5.	5.	4.	0.	1.	0.	1.	0.	0.	0.	4.	1.	0.	0.	2.	1.
62E3	12.	11.	2.	6.	1.	6.	2.	0.	1.	0.	0.	1.	0.	0.	3.	0.	0.	1.	1.	1.
62E4	12.	10.	11.	9.	4.	2.	12.	4.	2.	2.	1.	1.	0.	0.	1.	1.	0.	0.	0.	2.
62E5	23.	19.	25.	19.	13.	3.	7.	5.	1.	4.	2.	5.	0.	2.	0.	4.	0.	11.	7.	2.
62E6	24.	20.	17.	16.	12.	14.	14.	13.	9.	11.	13.	20.	4.	16.	18.	14.	3.	5.	14.	9.
62E7	15.	4.	5.	4.	0.	0.	0.	5.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	2.	3.
62E8	17.	10.	6.	6.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	1.	0.	1.	2.	1.
105E1	8.	11.	16.	6.	12.	3.	2.	1.	3.	1.	3.	14.	3.	15.	7.	13.	7.	9.	4.	9.
105E2	29.	22.	0.	9.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.	1.
105E3	17.	13.	16.	17.	13.	14.	13.	10.	12.	1.	4.	6.	6.	5.	4.	5.	4.	9.	10.	9.
105E4	35.	49.	28.	27.	23.	14.	4.	13.	10.	0.	0.	0.	0.	1.	2.	7.	4.	0.	1.	1.
105E5	21.	27.	32.	28.	27.	25.	28.	24.	19.	16.	9.	7.	3.	8.	12.	14.	7.	10.	12.	16.
105E6	18.	16.	23.	25.	16.	15.	15.	13.	9.	13.	11.	10.	0.	13.	13.	5.	1.	6.	13.	14.
105E7	37.	28.	32.	45.	28.	24.	15.	23.	15.	19.	24.	19.	19.	29.	26.	29.	22.	15.	27.	27.
105E8	21.	20.	19.	13.	0.	0.	0.	2.	0.	0.	1.	1.	0.	0.	3.	0.	0.	1.	2.	0.

Table 33

SUBJECT	STAGE 1: STUDY 2 SUPPRESSION RATIO																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
135E1	.60	.60	.56	.29	.37	.53	.51	.53	.09	.46	.47	.46	.54	.47	.48	.61	.44	.46	.48	.49
135E2	.48	.49	.55	.55	.17	.00	.14	.14	.21	.00	.00	.00	.00	.00	.43	.18	.00	.32	.60	.43
135E3	.39	.36	.34	.48	.23	.00	.00	.00	.00	.00	.00	.00	.00	.15	.33	.00	.00	.79	.13	.63
135E4	.38	.99	.00	.79	.14	.00	.00	.00	.12	.99	.00	.00	.00	.00	.33	.69	.30	.64	.43	.44
135E5	.63	.36	.45	.52	.45	.54	.61	.75	.50	.57	.60	.55	.52	.42	.58	.69	.48	.41	.62	.40
135E6	.51	.54	.53	.42	.42	.49	.55	.45	.52	.52	.52	.48	.47	.55	.49	.41	.46	.49	.52	.53
135E7	.53	.45	.54	.45	.53	.53	.60	.56	.53	.47	.53	.41	.42	.48	.37	.49	.24	.45	.35	.50
135E8	.48	.36	.38	.48	.00	.49	.32	.09	.00	.22	.21	.09	.00	.00	.00	.60	.00	.00	.24	.00

Table 34

SUBJECT	STAGE 11 STUDY 2 PRE-CS RATE FOR 3 MIN																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
135E1	16.	24.	33.	52.	26.	34.	40.	35.	31.	32.	48.	49.	38.	48.	51.	37.	27.	25.	23.	19.
135E2	46.	46.	50.	50.	57.	0.	56.	18.	23.	2.	0.	1.	17.	9.	36.	14.	45.	13.	6.	8.
135E3	33.	43.	40.	42.	40.	2.	0.	0.	5.	0.	0.	0.	2.	34.	18.	14.	33.	4.	21.	7.
135E4	20.	0.	3.	7.	38.	0.	0.	0.	22.	0.	0.	0.	0.	3.	12.	4.	21.	17.	20.	19.
135E5	19.	27.	29.	28.	26.	18.	29.	40.	27.	34.	57.	40.	33.	66.	31.	27.	45.	60.	44.	50.
135E6	52.	43.	48.	57.	57.	53.	54.	41.	56.	36.	44.	52.	51.	44.	46.	44.	46.	47.	50.	45.
135E7	27.	37.	36.	36.	46.	45.	52.	31.	29.	30.	34.	35.	21.	33.	26.	34.	29.	11.	17.	15.
135E8	39.	37.	24.	29.	32.	35.	32.	29.	30.	32.	23.	29.	25.	4.	5.	8.	28.	29.	28.	32.

Table 35

SUBJECT	STAGE 1: STUDY 2 DURING CS RATE FOR 1 MIN TRIAL																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
135E1	8.	12.	14.	7.	5.	13.	14.	13.	1.	9.	14.	14.	15.	14.	16.	19.	7.	7.	7.	6.
135E2	14.	15.	20.	20.	4.	0.	3.	1.	2.	0.	0.	0.	0.	0.	9.	1.	0.	2.	3.	2.
135E3	7.	8.	7.	13.	4.	0.	0.	0.	0.	0.	0.	0.	0.	2.	3.	0.	0.	5.	1.	4.
135E4	4.	1.	0.	9.	2.	0.	0.	0.	1.	1.	0.	0.	0.	0.	2.	3.	3.	10.	5.	5.
135E5	11.	5.	8.	10.	7.	7.	15.	40.	9.	15.	29.	16.	12.	16.	14.	20.	14.	14.	24.	11.
135E6	18.	17.	18.	14.	14.	17.	22.	11.	20.	13.	16.	16.	15.	18.	15.	10.	13.	15.	18.	17.
135E7	10.	10.	14.	10.	17.	17.	26.	13.	11.	9.	13.	8.	5.	10.	5.	11.	3.	3.	3.	5.
135E8	12.	7.	5.	9.	0.	11.	5.	1.	0.	3.	2.	1.	0.	0.	0.	4.	0.	0.	3.	0.

Table 36

SUBJECT	STAGE 1: STUDY 2 SUPPRESSION RATIO, 45 SEC																			
	TRIAL																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
105E1	.42	.58	.40	.43	.48	.15	.35	.86	.24	.00	.40	.33	.51	.46	.29	.35	.17	.40	.50	.20
105E2	.41	.48	.00	.21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.40	.00	.00	.28	.38
105E3	.56	.51	.47	.46	.24	.24	.47	.56	.32	.00	.58	.00	.41	.36	.37	.57	.11	.32	.30	.48
105E4	.42	.61	.60	.57	.51	.33	.47	.20	.26	.00	.00	.00	.10	.47	.50	.71	.38	.00	.00	.00
105E5	.41	.44	.59	.55	.26	.46	.44	.48	.41	.38	.49	.48	.35	.24	.35	.25	.15	.26	.24	.44
105E6	.36	.47	.46	.60	.46	.51	.60	.44	.33	.46	.41	.44	.07	.49	.38	.33	.20	.27	.41	.53
105E7	.43	.39	.46	.54	.40	.58	.26	.45	.27	.51	.55	.50	.39	.41	.47	.52	.43	.43	.22	.52
105E8	.45	.34	.45	.47	.05	.00	.00	.00	.00	.00	.00	.38	.00	.27	.15	.00	.00	.11	.00	.00

Table 37

SUBJECT	STAGE 1: STUDY 2 DURING CS RATE FOR 45 SEC																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
105E1	7.	15.	9.	5.	8.	1.	2.	3.	2.	0.	4.	8.	10.	11.	6.	6.	2.	8.	10.	3.
105E2	16.	15.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	3.	2.
105E3	12.	10.	13.	11.	5.	4.	9.	9.	7.	0.	7.	0.	8.	4.	4.	3.	2.	6.	6.	10.
105E4	19.	40.	27.	31.	19.	10.	9.	4.	7.	0.	0.	0.	1.	7.	3.	6.	6.	0.	2.	2.
105E5	14.	12.	34.	29.	6.	19.	15.	18.	17.	9.	12.	11.	10.	7.	10.	4.	4.	7.	5.	9.
105E6	8.	16.	15.	21.	12.	12.	18.	11.	6.	8.	7.	7.	1.	8.	7.	5.	3.	4.	7.	14.
105E7	24.	19.	28.	37.	20.	20.	6.	13.	8.	13.	22.	20.	13.	13.	20.	20.	20.	14.	6.	16.
105E8	15.	9.	12.	8.	1.	0.	0.	0.	0.	0.	0.	2.	0.	1.	1.	0.	0.	1.	0.	0.

Table 38

SUBJECT	STAGE 2: STUDY 2 SUPPRESSION RATIO											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	.00	.60	.82	.88	.00	.00	.00	.08	.00	.00	.00	.00
62E2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
62E3	.00	.00	.00	.00	.00	.00	.08	.12	.00	.08	.00	.08
62E4	.00	.00	.43	.00	.00	.10	.00	.00	.00	.00	.00	.16
62E5	.00	.00	.06	.02	.00	.06	.00	.00	.00	.04	.00	.42
62E6	.14	.40	.36	.07	.00	.30	.27	.34	.00	.06	.62	.45
62E7	.35	.09	.44	.20	.25	.44	.44	.54	.25	.99	.46	.27
62E8	.20	.00	.11	.13	.00	.00	.00	.00	.14	.10	.00	.00
105E1	.70	.51	.78	.54	.26	.57	.49	.47	.00	.00	.36	.38
105E2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.21	.00
105E3	.40	.26	.31	.41	.27	.19	.17	.11	.11	.17	.39	.44
105E4	.28	.79	.67	.39	.23	.45	.21	.82	.05	.00	.48	.00
105E5	.45	.41	.41	.51	.27	.45	.26	.26	.00	.04	.25	.00
105E6	.14	.53	.56	.58	.12	.54	.56	.33	.04	.43	.44	.40
105E7	.39	.41	.48	.47	.44	.41	.38	.42	.11	.11	.40	.35
105E8	.15	.19	.21	.09	.00	.24	.00	.29	.00	.00	.00	.00

Table 39

SUBJECT	STAGE 2: STUDY 2 PRE-CS RATE FOR 3 MIN											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	31.	4.	4.	2.	13.	5.	9.	36.	34.	2.	5.	17.
62E2	58.	44.	27.	34.	14.	20.	15.	21.	104.	61.	53.	65.
62E3	69.	50.	39.	34.	62.	33.	33.	23.	46.	33.	38.	37.
62E4	31.	29.	8.	20.	34.	26.	14.	31.	31.	28.	33.	31.
62E5	68.	109.	134.	143.	174.	94.	157.	214.	160.	162.	106.	95.
62E6	37.	45.	48.	39.	43.	28.	41.	41.	45.	46.	45.	40.
62E7	11.	30.	19.	24.	18.	19.	19.	13.	9.	0.	7.	16.
62E8	24.	18.	25.	21.	22.	24.	13.	22.	19.	26.	17.	23.
105E1	13.	20.	12.	13.	35.	18.	22.	30.	13.	30.	32.	20.
105E2	0.	5.	0.	0.	18.	13.	21.	12.	20.	28.	34.	20.
105E3	67.	52.	34.	22.	49.	39.	45.	51.	47.	43.	33.	46.
105E4	55.	4.	16.	14.	10.	18.	11.	4.	59.	21.	26.	15.
105E5	82.	56.	69.	64.	64.	52.	61.	70.	86.	74.	46.	50.
105E6	55.	64.	49.	56.	64.	59.	59.	73.	68.	68.	54.	78.
105E7	117.	115.	115.	99.	94.	95.	118.	106.	95.	72.	71.	85.
105E8	33.	26.	23.	30.	40.	28.	20.	37.	31.	25.	38.	33.

Table 40

SUBJECT	STAGE 2: STUDY 2 DURING CS RATE FOR 1 MIN											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	0.	2.	6.	5.	0.	0.	0.	1.	0.	0.	0.	0.
62E2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
62E3	0.	0.	0.	0.	0.	0.	1.	1.	0.	1.	0.	1.
62E4	0.	0.	2.	0.	0.	1.	0.	0.	0.	0.	0.	2.
62E5	0.	0.	3.	1.	0.	2.	0.	0.	0.	2.	0.	23.
62E6	2.	10.	9.	1.	0.	4.	5.	7.	0.	1.	24.	11.
62E7	2.	1.	5.	2.	2.	5.	5.	5.	1.	4.	2.	2.
62E8	2.	0.	1.	1.	0.	0.	0.	0.	1.	1.	0.	0.
105E1	10.	7.	14.	5.	4.	8.	7.	9.	0.	0.	6.	4.
105E2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.
105E3	15.	6.	5.	5.	6.	3.	3.	2.	2.	3.	7.	12.
105E4	7.	5.	11.	3.	1.	5.	1.	6.	1.	0.	8.	0.
105E5	22.	13.	16.	22.	8.	14.	7.	8.	0.	1.	5.	0.
105E6	3.	24.	21.	26.	3.	23.	25.	12.	1.	17.	14.	17.
105E7	25.	27.	36.	29.	25.	22.	24.	26.	4.	3.	16.	15.
105E8	2.	2.	2.	1.	0.	3.	0.	5.	0.	0.	0.	0.

Table 41

SUBJECT	STAGE 2: STUDY 2 SUPPRESSION RATIO											
	1	2	3	4	5	6	7	8	9	10	11	12
135E1	.52	.52	.54	.44	.52	.56	.46	.64	.45	.46	.40	.48
135E2	.00	.52	.41	.36	.00	.53	.53	.22	.06	.50	.57	.24
135E3	.08	.67	.00	.27	.00	.15	.00	.00	.00	.00	.24	.60
135E4	.00	.60	.62	.44	.00	.55	.43	.68	.00	.72	.60	.75
135E5	.45	.52	.37	.27	.44	.43	.49	.39	.08	.53	.57	.18
135E6	.56	.55	.40	.36	.63	.53	.49	.54	.49	.59	.48	.42
135E7	.27	.46	.60	.26	.73	.47	.11	.58	.62	.62	.69	.47
135E8	.00	.33	.13	.12	.00	.08	.13	.15	.00	.00	.62	.00

Table 42

SUBJECT	STAGE 2: STUDY 2 PRE-CS RATE FOR 3 MIN TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
135E1	79.	76.	88.	70.	49.	57.	49.	43.	67.	71.	85.	74.
135E2	37.	11.	13.	16.	43.	8.	8.	42.	50.	36.	36.	37.
135E3	35.	3.	21.	24.	31.	17.	31.	9.	37.	19.	19.	10.
135E4	14.	6.	11.	15.	22.	5.	8.	7.	22.	7.	6.	10.
135E5	76.	61.	76.	66.	85.	48.	28.	46.	33.	29.	39.	68.
135E6	35.	51.	62.	42.	35.	46.	35.	46.	62.	38.	59.	53.
135E7	33.	28.	20.	42.	10.	30.	24.	15.	13.	11.	11.	10.
135E8	41.	31.	39.	43.	30.	33.	39.	35.	44.	41.	26.	31.

Table 43

SUBJECT	STAGE 2: STUDY 2 DURING CS RATE FOR 1 MIN											
	1	2	3	4	5	6	7	8	9	10	11	12
135E1	28.	27.	35.	18.	18.	24.	14.	25.	18.	20.	19.	23.
135E2	0.	4.	3.	3.	0.	3.	3.	4.	1.	12.	16.	4.
135E3	1.	2.	0.	3.	0.	1.	0.	0.	0.	0.	2.	5.
135E4	0.	3.	6.	4.	0.	2.	2.	5.	0.	6.	3.	10.
135E5	21.	22.	15.	8.	22.	12.	9.	10.	1.	11.	17.	5.
135E6	15.	21.	14.	8.	20.	17.	11.	18.	20.	18.	18.	13.
135E7	4.	8.	10.	5.	9.	9.	1.	7.	7.	6.	8.	3.
135E8	0.	5.	2.	2.	0.	1.	2.	2.	0.	0.	14.	0.

Table 44

SUBJECT	STAGE 2: STUDY 2 SUPPRESSION RATIO, 45 SEC											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	.38	.29	.81	.48	.10	.61	.35	.29	.24	.00	.00	.62
105E2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.17
105E3	.19	.28	.26	.56	.33	.38	.35	.14	.15	.22	.27	.34
105E4	.42	.50	.20	.00	.55	.47	.27	.50	.32	.16	.13	.35
105E5	.05	.42	.15	.27	.06	.24	.28	.10	.04	.00	.00	.14
105E6	.23	.38	.47	.44	.16	.38	.47	.28	.19	.06	.43	.34
105E7	.42	.39	.41	.42	.32	.46	.37	.49	.20	.22	.46	.34
105E8	.00	.00	.34	.12	.00	.00	.00	.10	.00	.00	.00	.00

Table 45

SURJECT	STAGE 2: STUDY 2 DURING CS RATE FOR 45 SEC											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	2.	2.	13.	3.	1.	7.	3.	3.	1.	0.	0.	8.
105E2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
105E3	4.	5.	3.	7.	6.	6.	6.	2.	2.	3.	3.	6.
105E4	10.	1.	1.	0.	3.	4.	1.	1.	7.	1.	1.	2.
105E5	1.	10.	3.	6.	1.	4.	6.	2.	1.	0.	0.	2.
105E6	4.	10.	11.	11.	3.	9.	13.	7.	4.	1.	10.	10.
105E7	21.	18.	20.	18.	11.	20.	17.	25.	6.	5.	15.	11.
105E8	0.	0.	3.	1.	0.	0.	0.	1.	0.	0.	0.	0.

Table 46

SUBJECT	STAGE 3: STUDY 2 SUPPRESSION RATIO					
	TRIAL					
	1	2	3	4	5	6
62E1	.46	.00	.48	.07	.12	.00
62E2	.39	.20	.52	.10	.00	.00
62E3	.35	.49	.38	.49	.10	.04
62E4	.50	.07	.50	.06	.39	.14
62E5	.32	.25	.40	.44	.38	.57
62E6	.63	.51	.48	.46	.48	.40
62E7	.22	.66	.51	.19	.00	.26
62E8	.00	.50	.55	.81	.51	.52
105E1	.00	.11	.14	.26	.15	.52
105E2	.31	.00	.00	.00	.00	.00
105E3	.19	.04	.35	.16	.24	.19
105E4	.06	.00	.07	.00	.03	.00
105E5	.51	.51	.38	.33	.09	.04
105E6	.56	.52	.49	.38	.35	.16
105E7	.24	.05	.18	.00	.03	.00
105E8	.51	.45	.44	.17	.46	.55

Table 47

SUBJECT	STAGE 3: STUDY 2 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
62E1	64.	41.	36.	41.	69.	43.
62E2	172.	123.	75.	56.	85.	140.
62E3	51.	50.	77.	53.	77.	73.
62E4	33.	41.	53.	44.	46.	57.
62E5	25.	80.	73.	68.	64.	108.
62E6	27.	47.	42.	25.	32.	49.
62E7	21.	11.	17.	13.	25.	25.
62E8	29.	21.	25.	5.	38.	41.
105E1	39.	25.	36.	34.	34.	31.
105E2	105.	105.	60.	66.	83.	89.
105E3	64.	73.	39.	31.	66.	65.
105E4	94.	124.	156.	93.	89.	170.
105E5	47.	60.	72.	74.	88.	78.
105E6	107.	118.	135.	122.	193.	126.
105E7	74.	104.	108.	85.	93.	87.
105E8	67.	59.	68.	72.	70.	78.

Table 48

SUBJECT	STAGE 3: STUDY 2 DURING CS RATE FOR 1 MIN					
	TRIAL					
	1	2	3	4	5	6
62E1	18.	0.	11.	1.	3.	0.
62E2	37.	10.	27.	2.	0.	0.
62E3	9.	16.	16.	17.	3.	1.
62E4	11.	1.	18.	1.	10.	3.
62E5	4.	9.	16.	18.	13.	48.
62E6	15.	16.	13.	7.	10.	11.
62E7	2.	7.	6.	01.	0.	3.
62E8	0.	7.	10.	7.	13.	15.
105E1	0.	1.	2.	4.	2.	11.
105E2	16.	0.	0.	0.	0.	0.
105E3	5.	1.	7.	2.	7.	5.
105E4	2.	0.	4.	0.	1.	0.
105E5	16.	21.	15.	12.	3.	1.
105E6	45.	42.	43.	25.	35.	8.
105E7	8.	2.	8.	0.	1.	0.
105E8	23.	16.	18.	5.	20.	32.

Table 49

SUBJECT	STAGE 3: STUDY 2 SUPPRESSION RATIO					
	1	2	3	4	5	6
135E1	.19	.13	.41	.36	.22	.29
135E2	.00	.00	.00	.00	.00	.00
135E3	.00	.10	.06	.00	.00	.00
135E4	.45	.23	.41	.00	.39	.36
135E5	.20	.00	.34	.30	.00	.13
135E6	.54	.40	.53	.43	.54	.50
135E7	.58	.26	.67	.33	.14	.74
135E8	.48	.40	.50	.37	.49	.64

Table 50

SUBJECT	STAGE 3: STUDY 2 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
135E1	50.	82.	86.	54.	54.	45.
135E2	53.	59.	67.	52.	65.	40.
135E3	44.	27.	48.	61.	45.	26.
135E4	36.	20.	26.	22.	23.	27.
135E5	12.	14.	23.	14.	17.	41.
135E6	49.	80.	62.	67.	53.	54.
135E7	15.	17.	29.	18.	18.	16.
135E8	33.	53.	57.	46.	47.	20.

Table 51

SUBJECT	STAGE 3: STUDY 2 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
135E1	4.	4.	20.	10.	5.	6.
135E2	0.	0.	0.	0.	0.	0.
135E3	0.	1.	1.	0.	0.	0.
135E4	10.	2.	6.	0.	5.	5.
135E5	1.	0.	4.	2.	0.	2.
135E6	19.	18.	23.	17.	21.	18.
135E7	7.	2.	20.	3.	1.	15.
135E8	10.	12.	19.	9.	15.	12.

Table 52

SUBJECT	STAGE 4: STUDY 2 SUPPRESSION RATIO					
	1	2	3	TRIAL		6
	4	5				
62E1	.00	.00	.00	.00	.00	.00
62E2	.00	.00	.00	.00	.00	.00
62E3	.00	.00	.00	.04	.00	.10
62E4	.00	.00	.00	.11	.00	.21
62E5	.04	.00	.00	.00	.07	.06
62E6	.39	.00	.00	.00	.27	.29
62E7	.00	.00	.00	.08	.00	.24
62E8	.15	.00	.21	.11	.17	.08
105E1	.40	.00	.00	.00	.15	.26
105E2	.00	.00	.00	.00	.00	.00
105E3	.21	.14	.19	.08	.51	.20
105E4	.05	.00	.00	.12	.24	.19
105E5	.13	.04	.14	.15	.50	.46
105E6	.09	.00	.08	.28	.22	.26
105E7	.09	.00	.19	.05	.35	.07
105E8	.00	.00	.00	.15	.00	.32

Table 53

SUBJECT	STAGE 4: STUDY 2 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
62E1	45.	46.	27.	44.	35.	35.
62E2	81.	60.	28.	93.	68.	58.
62E3	33.	68.	59.	81.	44.	56.
62E4	36.	41.	30.	47.	43.	57.
62E5	82.	127.	124.	73.	85.	92.
62E6	33.	69.	46.	38.	33.	51.
62E7	16.	44.	38.	35.	38.	38.
62E8	17.	32.	23.	24.	29.	34.
105E1	27.	34.	22.	24.	34.	26.
105E2	131.	96.	71.	81.	40.	42.
105E3	56.	74.	62.	66.	49.	74.
105E4	111.	101.	127.	111.	94.	113.
105E5	81.	71.	72.	51.	51.	79.
105E6	159.	121.	133.	133.	128.	151.
105E7	60.	57.	13.	54.	45.	86.
105E8	59.	63.	44.	51.	32.	51.

Table 54

SUBJECT	STAGE 4: STUDY 2 DURING CS RATE FOR 1 MIN					
	TRIAL					
	1	2	3	4	5	6
62E1	0.	0.	0.	0.	0.	0.
62E2	0.	0.	0.	0.	0.	0.
62E3	0.	0.	0.	1.	0.	2.
62E4	0.	0.	0.	2.	0.	5.
62E5	1.	0.	0.	0.	2.	2.
62E6	7.	0.	0.	0.	4.	7.
62E7	0.	0.	0.	1.	0.	4.
62E8	1.	0.	2.	1.	2.	1.
105E1	6.	0.	0.	0.	2.	3.
105E2	0.	0.	0.	0.	0.	0.
105E3	5.	4.	5.	2.	17.	6.
105E4	2.	0.	0.	5.	10.	9.
105E5	4.	1.	4.	3.	17.	22.
105E6	5.	0.	4.	17.	12.	18.
105E7	2.	0.	1.	1.	8.	2.
105E8	0.	0.	0.	3.	0.	8.

Table 55

SUBJECT	STAGE 4: STUDY 2 SUPPRESSION RATIO					
	1	2	3	TRIAL 4	5	6
135E1	.42	.63	.37	.51	.59	.41
135E2	.00	.25	.00	.14	.37	.00
135E3	.00	.07	.15	.00	.00	.00
135E4	.33	.31	.30	.30	.16	.20
135E5	.49	.62	.44	.43	.57	.48
135E6	.51	.51	.50	.49	.62	.39
135E7	.44	.26	.48	.48	.14	.29
135E8	.23	.05	.00	.00	.00	.00

Table 56

SUBJECT	STAGE 4: STUDY 2 PRE-CS RATE FOR 3 MIN					
	1	2	3	TRIAL 4	5	6
135E1	66.	23.	36.	41.	41.	34.
135E2	56.	36.	53.	55.	56.	52.
135E3	47.	43.	35.	38.	74.	63.
135E4	18.	20.	21.	28.	16.	24.
135E5	22.	28.	30.	36.	20.	36.
135E6	49.	47.	36.	34.	22.	23.
135E7	15.	17.	13.	16.	19.	15.
135E8	49.	55.	67.	50.	48.	51.

Table 57

SUBJECT	STAGE 4: STUDY 2 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
135E1	16.	13.	7.	14.	20.	8.
135E2	0.	4.	0.	3.	11.	0.
135E3	0.	1.	2.	0.	0.	0.
135E4	3.	3.	3.	4.	1.	2.
135E5	7.	15.	8.	9.	9.	11.
135E6	17.	16.	12.	11.	12.	5.
135E7	4.	2.	4.	5.	1.	2.
135E8	5.	1.	0.	0.	0.	0.

Table 58

SUBJECT	STAGE 11 STUDY 3 SUPPRESSION RATIO																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	TRIAL																			
62E1	.50	.36	.55	.46	.03	.41	.54	.62	.32	.39	.37	.38	.00	.04	.09	.16	.00	.30	.25	.20
62E2	.48	.55	.40	.50	.41	.37	.25	.39	.09	.31	.43	.26	.10	.07	.28	.32	.00	.17	.05	.32
62E3	.47	.43	.59	.48	.00	.00	.32	.10	.33	.23	.38	.44	.21	.04	.19	.18	.16	.06	.13	.49
62E4	.55	.22	.44	.35	.00	.41	.16	.12	.00	.00	.10	.30	.00	.00	.48	.27	.00	.55	.00	.46
62E5	.24	.36	.36	.21	.34	.49	.38	.51	.07	.06	.19	.32	.00	.13	.33	.09	.00	.53	.00	.00
62E6	.41	.49	.52	.48	.29	.43	.34	.44	.16	.30	.33	.14	.13	.19	.07	.37	.13	.37	.11	.20
62E7	.56	.20	.23	.00	.35	.40	.42	.52	.22	.21	.00	.21	.00	.00	.31	.39	.11	.00	.18	.26
62E8	.20	.27	.03	.42	.26	.36	.15	.25	.00	.08	.00	.00	.04	.41	.00	.26	.07	.00	.00	.14
105E1	.35	.57	.36	.43	.20	.00	.00	.75	.10	.00	.25	.25	.19	.00	.39	.58	.14	.60	.20	.52
105E2	.49	.44	.48	.39	.40	.00	.00	.43	.36	.24	.63	.49	.17	.32	.14	.43	.00	.00	.23	.43
105E3	.46	.56	.30	.65	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
105E4	.39	.55	.50	.61	.44	.47	.48	.54	.27	.10	.18	.71	.13	.00	.27	.41	.16	.07	.31	.20
105E5	.32	.62	.54	.59	.36	.25	.49	.45	.00	.32	.13	.18	.00	.00	.27	.38	.00	.12	.30	.09
105E6	.71	.49	.53	.60	.20	.56	.40	.22	.00	.15	.34	.44	.15	.00	.22	.15	.00	.15	.07	.00
105E7	.46	.43	.41	.32	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.00	.38	.23	.17
105E8	.11	.49	.40	.06	.36	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.56

Table 59

SUBJECT	STAGE 11 STUDY 3 PRE-C9 RATE FOR 3 MIN																			
	TRIAL																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
62E1	24.	27.	30.	21.	87.	30.	23.	62.	38.	38.	57.	49.	67.	82.	86.	78.	24.	55.	62.	40.
62E2	139.	126.	160.	131.	165.	119.	100.	103.	92.	67.	36.	35.	129.	79.	83.	76.	81.	85.	56.	71.
62E3	93.	107.	89.	130.	34.	35.	39.	52.	103.	108.	50.	30.	121.	82.	77.	27.	130.	100.	78.	59.
62E4	15.	21.	31.	17.	95.	51.	16.	23.	1.	12.	26.	14.	21.	22.	16.	8.	27.	20.	27.	21.
62E5	97.	53.	53.	55.	29.	22.	20.	23.	43.	49.	25.	13.	7.	40.	30.	32.	61.	21.	19.	27.
62E6	109.	111.	130.	145.	155.	82.	135.	81.	127.	126.	60.	38.	58.	38.	83.	56.	122.	41.	97.	61.
62E7	36.	36.	31.	36.	145.	138.	121.	77.	32.	23.	33.	34.	28.	27.	41.	42.	47.	27.	40.	52.
62E8	83.	57.	95.	83.	26.	16.	35.	18.	26.	35.	17.	35.	64.	30.	27.	25.	39.	28.	15.	18.
105E1	44.	39.	48.	8.	12.	0.	0.	2.	27.	16.	27.	9.	39.	9.	14.	11.	19.	4.	12.	14.
105E2	90.	109.	81.	94.	97.	25.	0.	39.	70.	38.	18.	22.	75.	13.	37.	12.	80.	38.	30.	24.
105E3	148.	102.	113.	73.	135.	44.	0.	0.	104.	0.	0.	0.	121.	22.	0.	0.	109.	0.	0.	0.
105E4	51.	42.	51.	36.	46.	40.	26.	28.	49.	26.	28.	6.	42.	16.	16.	17.	31.	42.	47.	37.
105E5	69.	60.	78.	59.	79.	88.	62.	58.	74.	65.	59.	27.	0.	35.	24.	40.	81.	65.	56.	30.
105E6	53.	101.	76.	61.	107.	28.	27.	21.	99.	35.	47.	38.	33.	36.	32.	33.	116.	69.	70.	40.
105E7	81.	89.	70.	57.	68.	3.	5.	50.	48.	23.	6.	9.	51.	38.	38.	39.	78.	24.	41.	45.
105E8	72.	89.	77.	48.	47.	4.	8.	0.	59.	12.	21.	8.	62.	39.	33.	13.	60.	29.	31.	33.

Table 60

SUBJECT	STAGE 11 STUDY 3 DURING CS RATE FOR 1 MIN																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
62E1	11.	5.	12.	6.	1.	7.	9.	34.	6.	8.	11.	10.	0.	1.	3.	5.	0.	8.	7.	4.
62E2	43.	51.	36.	43.	39.	23.	11.	22.	3.	10.	9.	4.	5.	2.	11.	12.	0.	6.	1.	11.
62E3	28.	27.	42.	40.	0.	0.	6.	2.	17.	11.	10.	8.	11.	1.	6.	2.	8.	2.	4.	19.
62E4	6.	2.	8.	3.	0.	12.	1.	1.	0.	0.	1.	2.	0.	0.	5.	1.	0.	8.	0.	6.
62E5	10.	10.	10.	5.	5.	7.	4.	8.	1.	1.	2.	2.	0.	2.	5.	1.	0.	0.	0.	0.
62E6	25.	36.	47.	44.	21.	21.	23.	21.	8.	18.	10.	2.	3.	3.	2.	11.	6.	8.	4.	5.
62E7	15.	3.	3.	0.	26.	31.	29.	28.	3.	2.	0.	3.	0.	0.	6.	9.	2.	0.	3.	6.
62E8	7.	7.	1.	20.	3.	3.	2.	2.	0.	1.	0.	0.	1.	7.	0.	3.	1.	0.	0.	1.
105E1	8.	17.	9.	2.	1.	0.	0.	2.	1.	0.	3.	1.	3.	0.	3.	5.	1.	2.	1.	5.
105E2	29.	29.	25.	20.	22.	0.	0.	10.	13.	4.	11.	7.	5.	2.	2.	3.	0.	0.	3.	6.
105E3	42.	44.	16.	46.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105E4	11.	17.	17.	19.	12.	12.	8.	11.	6.	1.	2.	5.	2.	0.	2.	4.	2.	1.	7.	3.
105E5	11.	32.	31.	28.	15.	10.	20.	16.	0.	10.	3.	2.	0.	0.	3.	8.	0.	3.	8.	1.
105E6	44.	32.	28.	30.	9.	12.	6.	2.	0.	2.	8.	10.	2.	0.	3.	2.	0.	4.	2.	0.
105E7	23.	22.	16.	9.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	5.	4.	3.
105E8	3.	28.	17.	1.	9.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	14.

Table 61

SUBJECT	STAGE 1: STUDY 3 SUPPRESSION RATIO, 45 SEC TRIAL																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
105E1	.27	.48	.27	.67	.00	.00	.00	.89	.00	.33	.31	.57	.34	.00	.46	.42	.17	.00	.40	.22
105E2	.44	.40	.51	.43	.46	.00	.00	.29	.34	.30	.57	.35	.18	.38	.00	.50	.05	.00	.29	.33
105E3	.40	.40	.28	.52	.03	.00	.00	.00	.00	.00	.00	.00	.19	.00	.00	.00	.00	.00	.00	.00
105E4	.32	.46	.41	.55	.44	.44	.43	.53	.20	.24	.00	.57	.09	.20	.00	.00	.71	.09	.20	.18
105E5	.41	.50	.36	.54	.20	.29	.46	.38	.10	.06	.00	.23	.00	.00	.00	.00	.00	.06	.13	.17
105E6	.66	.47	.60	.54	.23	.30	.23	.28	.04	.31	.08	.39	.20	.25	.27	.46	.15	.15	.20	.17
105E7	.55	.31	.05	.36	.00	.00	.00	.19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08
105E8	.22	.40	.32	.08	.08	.00	.00	.00	.00	.00	.00	.60	.00	.00	.20	.55	.06	.00	.00	.00

Table 62

SUBJECT	STAGE 11 STUDY 3 DURING CS RATE FOR 45 SEC																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
105E1	4.	9.	5.	4.	0.	0.	0.	4.	0.	2.	3.	3.	5.	0.	3.	2.	1.	0.	2.	1.
105E2	18.	18.	21.	18.	21.	0.	0.	4.	9.	4.	6.	3.	4.	2.	0.	3.	1.	0.	3.	3.
105E3	23.	17.	11.	20.	1.	0.	0.	0.	0.	0.	0.	0.	7.	0.	0.	0.	0.	0.	0.	0.
105E4	6.	9.	9.	11.	9.	8.	5.	8.	3.	2.	0.	2.	1.	1.	0.	0.	2.	1.	3.	2.
105E5	12.	15.	11.	17.	5.	9.	13.	9.	2.	1.	0.	2.	0.	0.	0.	0.	0.	1.	2.	1.
105E6	26.	22.	28.	18.	8.	3.	2.	2.	1.	4.	1.	6.	2.	3.	3.	7.	5.	3.	5.	2.
105E7	25.	10.	1.	8.	0.	0.	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
105E8	5.	15.	9.	1.	1.	0.	0.	0.	0.	0.	0.	3.	0.	0.	2.	4.	1.	0.	0.	0.

Table 63

SUBJECT	STAGE 2: STUDY 3 SUPPRESSION RATIO											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	.08	.43	.38	.35	.19	.38	.73	.40	.46	.24	.56	.29
62E2	.00	.20	.25	.00	.00	.00	.08	.00	.00	.00	.08	.00
62E3	.27	.11	.15	.43	.26	.05	.28	.06	.00	.03	.22	.06
62E4	.00	.42	.36	.35	.00	.36	.25	.00	.00	.00	.27	.00
62E5	.10	.05	.20	.42	.00	.13	.07	.49	.31	.00	.33	.40
62E6	.04	.28	.13	.17	.12	.17	.31	.00	.00	.00	.05	.03
62E7	.00	.00	.00	.21	.09	.19	.22	.00	.00	.00	.00	.00
62E8	.00	.00	.00	.34	.12	.09	.10	.00	.40	.00	.08	.12
62C1	.38	.40	.48	.54	.00	.25	.47	.27	.00	.07	.00	.12
62C2	.39	.39	.35	.34	.00	.13	.10	.38	.07	.00	.00	.00
62C3	.43	.38	.21	.40	.00	.00	.00	.00	.00	.00	.00	.00
62C4	.43	.34	.06	.00	.00	.12	.43	.22	.00	.00	.00	.00
62C5	.43	.00	.12	.37	.00	.05	.05	.00	.03	.00	.07	.06
62C6	.50	.48	.47	.45	.00	.08	.18	.05	.00	.00	.00	.00
62C7	.33	.41	.45	.52	.34	.13	.09	.43	.00	.00	.00	.00
62C8	.36	.30	.23	.15	.03	.04	.00	.05	.00	.00	.00	.06

Table 64

SUBJECT	STAGE 2: STUDY 3 PRE-CS RATE FOR 3 MIN											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	37.	32.	30.	28.	26.	29.	26.	40.	42.	47.	19.	29.
62E2	113.	47.	18.	31.	75.	51.	71.	73.	28.	41.	33.	32.
62E3	129.	98.	99.	59.	102.	111.	94.	87.	87.	92.	84.	94.
62E4	31.	29.	16.	22.	32.	16.	18.	36.	29.	28.	16.	19.
62E5	55.	63.	47.	38.	117.	41.	43.	31.	40.	33.	31.	31.
62E6	142.	68.	59.	57.	88.	71.	59.	68.	101.	42.	57.	86.
62E7	28.	18.	21.	22.	32.	25.	21.	28.	28.	19.	28.	20.
62E8	40.	28.	20.	29.	45.	30.	28.	30.	9.	25.	33.	23.
62C1	49.	41.	36.	28.	50.	46.	41.	41.	55.	42.	59.	45.
62C2	51.	56.	44.	40.	47.	41.	27.	5.	39.	19.	34.	17.
62C3	51.	59.	34.	49.	72.	19.	29.	25.	35.	27.	64.	31.
62C4	104.	122.	130.	60.	122.	86.	36.	64.	91.	31.	18.	55.
62C5	32.	43.	22.	56.	64.	61.	59.	33.	102.	9.	118.	94.
62C6	56.	59.	50.	62.	82.	36.	41.	57.	89.	28.	41.	53.
62C7	97.	98.	164.	75.	97.	61.	63.	48.	96.	66.	31.	35.
62C8	84.	50.	41.	66.	112.	74.	66.	61.	101.	87.	77.	47.

Table 65

SUBJECT	STAGE 2: STUDY 3 DURING CS RATE FOR 1 MIN											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	1.	8.	6.	5.	2.	6.	23.	9.	12.	5.	8.	4.
62E2	0.	4.	2.	0.	0.	0.	2.	0.	0.	0.	1.	0.
62E3	16.	4.	6.	15.	12.	2.	12.	2.	0.	1.	8.	2.
62E4	0.	7.	3.	4.	0.	3.	2.	0.	0.	0.	2.	0.
62E5	2.	1.	4.	9.	0.	2.	1.	10.	6.	0.	5.	7.
62E6	2.	9.	3.	4.	4.	5.	9.	0.	0.	0.	1.	1.
62E7	0.	0.	0.	2.	1.	2.	2.	0.	0.	0.	0.	0.
62E8	0.	0.	0.	5.	2.	1.	1.	0.	2.	0.	1.	1.
62C1	10.	9.	11.	11.	0.	5.	12.	5.	0.	1.	0.	2.
62C2	11.	12.	8.	7.	0.	2.	1.	1.	1.	0.	0.	0.
62C3	13.	12.	3.	11.	0.	0.	0.	0.	0.	0.	0.	0.
62C4	26.	21.	3.	0.	0.	4.	9.	6.	0.	0.	0.	0.
62C5	8.	0.	1.	11.	0.	1.	1.	0.	1.	0.	3.	2.
62C6	19.	18.	15.	17.	0.	1.	3.	1.	0.	0.	0.	0.
62C7	16.	23.	44.	27.	17.	3.	2.	12.	0.	0.	0.	0.
62C8	16.	7.	4.	4.	1.	1.	0.	1.	0.	0.	0.	1.

Table 66

SUBJECT	STAGE 2: STUDY 3 SUPPRESSION RATIO											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	.38	.21	.35	.38	.00	.00	.24	.10	.00	.20	.30	.26
105E2	.05	.14	.12	.12	.00	.00	.23	.00	.00	.00	.19	.00
105E3	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
105E4	.30	.16	.35	.32	.00	.21	.46	.07	.00	.12	.19	.00
105E5	.00	.00	.09	.00	.00	.00	.00	.00	.00	.00	.15	.00
105E6	.14	.05	.00	.13	.00	.00	.00	.29	.00	.00	.46	.00
105E7	.00	.13	.00	.29	.00	.00	.31	.11	.00	.00	.00	.00
105E8	.00	.06	.06	.14	.00	.00	.26	.00	.00	.24	.26	.00
105C1	.38	.44	.11	.15	.00	.00	.00	.00	.00	.00	.00	.00
105C2	.34	.38	.42	.08	.20	.12	.19	.00	.00	.11	.17	.00
105C3	.35	.41	.54	.54	.10	.06	.31	.18	.00	.05	.39	.05
105C4	.33	.47	.58	.50	.42	.67	.40	.08	.00	.00	.48	.32
105C5	.22	.33	.18	.20	.00	.00	.00	.00	.00	.00	.18	.21
105C6	.60	.42	.26	.49	.00	.00	.00	.00	.00	.21	.46	.30
105C7	.18	.57	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00
105C8	.25	.46	.53	.26	.03	.28	.10	.07	.00	.31	.13	.20

Table 67

SUBJECT	STAGE 2: STUDY 3 PRE-CS RATE FOR 3 MIN											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	30.	22.	28.	24.	33.	30.	29.	26.	29.	35.	28.	25.
105E2	113.	18.	64.	65.	86.	0.	59.	88.	98.	92.	76.	87.
105E3	37.	4.	0.	0.	0.	0.	0.	0.	10.	0.	0.	0.
105E4	50.	49.	50.	57.	52.	46.	32.	42.	54.	43.	62.	43.
105E5	70.	81.	64.	87.	61.	39.	61.	63.	72.	59.	88.	76.
105E6	130.	60.	80.	84.	88.	96.	57.	81.	85.	82.	87.	73.
105E7	76.	63.	52.	59.	58.	50.	53.	50.	60.	65.	60.	77.
105E8	66.	44.	45.	56.	52.	34.	43.	41.	61.	47.	42.	45.
105C1	84.	84.	76.	120.	103.	63.	23.	13.	82.	13.	34.	3.
105C2	95.	85.	58.	66.	73.	64.	50.	35.	66.	49.	45.	33.
105C3	89.	66.	70.	54.	55.	45.	47.	54.	31.	52.	42.	58.
105C4	184.	140.	100.	126.	167.	47.	77.	71.	13.	95.	101.	104.
105C5	54.	42.	40.	36.	19.	19.	17.	34.	49.	28.	28.	23.
105C6	24.	21.	25.	28.	30.	18.	6.	3.	15.	11.	7.	14.
105C7	119.	88.	79.	97.	41.	15.	4.	0.	73.	6.	52.	69.
105C8	128.	109.	89.	60.	85.	55.	52.	42.	110.	54.	39.	71.

Table 68

SUBJECT	STAGE 2: STUDY 3 DURING CS RATE FOR 1 MIN											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	6.	2.	5.	5.	0.	0.	3.	1.	0.	3.	4.	3.
105E2	2.	1.	3.	3.	0.	0.	6.	0.	0.	0.	6.	0.
105E3	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105E4	7.	3.	9.	9.	0.	4.	9.	1.	0.	2.	5.	0.
105E5	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.	5.	0.
105E6	7.	1.	0.	4.	0.	0.	0.	11.	0.	0.	25.	0.
105E7	0.	3.	0.	8.	0.	0.	8.	2.	0.	0.	0.	0.
105E8	0.	1.	1.	3.	0.	0.	5.	0.	0.	5.	5.	0.
105C1	17.	22.	3.	7.	0.	0.	0.	0.	0.	0.	0.	0.
105C2	16.	17.	14.	2.	6.	3.	4.	0.	0.	2.	3.	0.
105C3	16.	15.	27.	21.	2.	1.	7.	4.	0.	1.	9.	1.
105C4	30.	41.	46.	42.	40.	32.	17.	2.	0.	0.	31.	16.
105C5	5.	7.	3.	3.	0.	0.	0.	0.	0.	0.	2.	2.
105C6	12.	5.	3.	9.	0.	0.	0.	0.	0.	1.	2.	2.
105C7	9.	39.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105C8	14.	31.	34.	7.	1.	7.	2.	1.	0.	8.	2.	6.

Table 69

SUBJECT	STAGE 2: STUDY 3 SUPPRESSION RATIO, 45 SEC											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	.00	.00	.22	.00	.00	.00	.00	.00	.00	.00	.00	.14
105E2	.00	.31	.11	.06	.04	.00	.06	.12	.04	.04	.05	.04
105E3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
105E4	.14	.08	.14	.22	.00	.08	.00	.00	.00	.00	.06	.09
105E5	.05	.00	.06	.04	.00	.09	.06	.00	.05	.06	.00	.10
105E6	.06	.06	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00
105E7	.00	.00	.00	.00	.00	.07	.13	.00	.00	.00	.00	.00
105E8	.00	.00	.00	.13	.00	.00	.09	.00	.00	.00	.00	.00
105C1	.42	.50	.14	.35	.10	.16	.00	.00	.00	.00	.00	.00
105C2	.46	.36	.43	.27	.25	.27	.39	.53	.00	.14	.21	.20
105C3	.33	.44	.44	.40	.34	.38	.54	.27	.00	.24	.22	.29
105C4	.39	.49	.47	.42	.36	.70	.32	.25	.55	.25	.04	.13
105C5	.34	.16	.41	.00	.00	.00	.00	.00	.00	.00	.00	.00
105C6	.54	.36	.39	.36	.00	.31	.00	.00	.00	.00	.36	.36
105C7	.43	.35	.09	.00	.00	.00	.00	.00	.00	.00	.00	.00
105C8	.41	.47	.40	.35	.04	.27	.07	.16	.00	.07	.09	.10

Table 70

STAGE 2: STUDY 3 DURING CS RATE FOR 45 SEC

SUBJECT	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	1.
105E2	0.	2.	2.	1.	1.	0.	1.	3.	1.	1.	1.	1.
105E3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105E4	2.	1.	2.	4.	0.	1.	0.	0.	0.	0.	1.	1.
105E5	1.	0.	1.	1.	0.	1.	1.	0.	1.	1.	0.	2.
105E6	2.	1.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
105E7	0.	0.	0.	0.	0.	1.	2.	0.	0.	0.	0.	0.
105E8	0.	0.	0.	2.	0.	0.	1.	0.	0.	0.	0.	0.
105C1	15.	21.	3.	16.	3.	3.	0.	0.	0.	0.	0.	0.
105C2	20.	12.	11.	6.	6.	6.	8.	10.	0.	2.	3.	2.
105C3	11.	13.	14.	9.	7.	7.	14.	5.	0.	4.	3.	6.
105C4	29.	33.	22.	23.	23.	27.	9.	6.	4.	8.	1.	4.
105C5	7.	2.	7.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105C6	7.	3.	4.	4.	0.	2.	0.	0.	0.	0.	1.	2.
105C7	22.	12.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105C8	22.	24.	15.	8.	1.	5.	1.	2.	0.	1.	1.	2.

Table 71

SUBJECT	STAGE 3: STUDY 3 SUPPRESSION RATIO TRIAL					
	1	2	3	4	5	6
62E1	.57	.41	.23	.15	.09	.24
62E2	.50	.00	.00	.37	.00	.07
62E3	.43	.46	.40	.21	.13	.04
62E4	.53	.00	.00	.00	.00	.00
62E5	.36	.00	.00	.00	.05	.00
62E6	.54	.46	.51	.50	.10	.13
62E7	.27	.47	.45	.54	.33	.33
62E8	.29	.48	.44	.35	.04	.03
62C1	.42	.10	.00	.23	.05	.00
62C2	.09	.00	.00	.00	.00	.00
62C3	.20	.08	.00	.00	.09	.00
62C4	.48	.02	.00	.00	.00	.00
62C5	.22	.00	.08	.00	.00	.00
62C6	.51	.07	.04	.00	.00	.09
62C7	.15	.09	.10	.02	.03	.06
62C8	.28	.04	.00	.00	.00	.00

Table 72

SUBJECT	STAGE 3: STUDY 3 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
62E1	20.	66.	41.	35.	29.	29.
62E2	3.	0.	4.	26.	53.	81.
62E3	128.	176.	184.	123.	103.	212.
62E4	24.	15.	21.	43.	31.	62.
62E5	76.	84.	70.	93.	63.	108.
62E6	83.	168.	127.	168.	135.	162.
62E7	24.	30.	29.	23.	24.	62.
62E8	96.	90.	68.	144.	78.	91.
62C1	46.	53.	43.	62.	54.	62.
62C2	62.	67.	36.	51.	47.	56.
62C3	49.	33.	35.	29.	32.	34.
62C4	131.	121.	110.	109.	118.	108.
62C5	83.	109.	72.	55.	46.	63.
62C6	40.	43.	68.	105.	54.	87.
62C7	88.	120.	56.	144.	92.	92.
62C8	92.	72.	133.	99.	65.	85.

Table 73

SUBJECT	STAGE 3: STUDY 3 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
62E1	9.	15.	4.	2.	1.	3.
62E2	1.	0.	0.	5.	0.	2.
62E3	32.	50.	41.	11.	5.	3.
62E4	9.	0.	0.	0.	0.	0.
62E5	14.	0.	0.	0.	1.	0.
62E6	32.	47.	44.	55.	5.	8.
62E7	3.	9.	8.	9.	4.	10.
62E8	13.	28.	18.	26.	1.	1.
62C1	11.	2.	0.	6.	1.	0.
62C2	2.	0.	0.	0.	0.	0.
62C3	4.	1.	0.	0.	1.	0.
62C4	41.	1.	0.	0.	0.	0.
62C5	8.	0.	2.	0.	0.	0.
62C6	14.	1.	1.	0.	0.	3.
62C7	5.	4.	2.	1.	1.	2.
62C8	12.	1.	0.	0.	0.	0.

Table 74

SUBJECT	STAGE 3: STUDY 3 SUPPRESSION RATIO TRIAL					
	1	2	3	4	5	6
105E1	.00	.00	.00	.00	.00	.00
105E2	.38	.53	.09	.14	.10	.00
105E3	.00	.00	.00	.00	.00	.00
105E4	.03	.07	.00	.00	.00	.05
105E5	.07	.06	.00	.00	.00	.00
105E6	.47	.03	.00	.02	.00	.21
105E7	.49	.00	.00	.04	.00	.00
105E8	.17	.00	.00	.00	.00	.00
105C1	.02	.20	.00	.07	.00	.17
105C2	.05	.32	.23	.00	.00	.00
105C3	.00	.00	.36	.17	.00	.18
105C4	.00	.40	.00	.43	.50	.04
105C5	.09	.00	.00	.00	.00	.00
105C6	.00	.00	.00	.00	.00	.00
105C7	.12	.00	.00	.00	.00	.00
105C8	.11	.23	.05	.04	.15	.03

Table 75

SUBJECT	STAGE 3: STUDY 3 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
105E1	23.	14.	26.	45.	28.	16.
105E2	79.	59.	58.	107.	82.	54.
105E3	103.	102.	99.	142.	96.	73.
105E4	91.	83.	50.	66.	70.	57.
105E5	121.	87.	90.	62.	61.	83.
105E6	95.	92.	59.	130.	70.	114.
105E7	46.	43.	62.	75.	57.	73.
105E8	75.	84.	73.	68.	49.	92.
105C1	163.	118.	81.	128.	82.	91.
105C2	61.	101.	71.	21.	63.	74.
105C3	48.	39.	37.	44.	50.	41.
105C4	98.	73.	71.	100.	98.	67.
105C5	58.	57.	49.	75.	67.	73.
105C6	12.	19.	13.	16.	16.	10.
105C7	67.	51.	49.	95.	75.	54.
105C8	153.	71.	110.	128.	141.	117.

Table 76

SUBJECT	STAGE 3: STUDY 3 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
105E1	0.	0.	0.	0.	0.	0.
105E2	16.	22.	2.	6.	3.	0.
105E3	0.	0.	0.	0.	0.	0.
105E4	1.	2.	0.	0.	0.	1.
105E5	3.	2.	0.	0.	0.	0.
105E6	28.	1.	0.	1.	0.	10.
105E7	15.	0.	0.	1.	0.	0.
105E8	5.	0.	0.	0.	0.	0.
105C1	1.	10.	0.	3.	0.	6.
105C2	1.	16.	7.	0.	0.	0.
105C3	0.	0.	7.	3.	0.	3.
105C4	0.	16.	0.	25.	33.	1.
105C5	2.	0.	0.	0.	0.	0.
105C6	0.	0.	0.	0.	0.	0.
105C7	3.	0.	0.	0.	0.	0.
105C8	6.	7.	2.	2.	8.	1.

Table 77

SUBJECT	STAGE 4: STUDY 3 SUPPRESSION RATIO					
	TRIAL					
	1	2	3	4	5	6
62E1	.06	.00	.35	.32	.26	.19
62E2	.00	.11	.08	.09	.19	.47
62E3	.00	.01	.04	.00	.08	.24
62E4	.00	.00	.00	.00	.00	.08
62E5	.00	.00	.00	.00	.28	.18
62E6	.07	.10	.15	.41	.24	.32
62E7	.00	.07	.09	.00	.09	.12
62E8	.00	.00	.00	.00	.00	.00
62C1	.00	.00	.16	.31	.00	.20
62C2	.00	.00	.00	.00	.00	.21
62C3	.00	.14	.12	.00	.15	.35
62C4	.00	.03	.10	.08	.03	.14
62C5	.00	.00	.00	.00	.00	.00
62C6	.00	.00	.22	.00	.00	.00
62C7	.03	.00	.34	.30	.43	.32
62C8	.00	.00	.00	.00	.00	.00

Table 78

SUBJECT	STAGE 4: STUDY 3 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
62E1	46.	16.	28.	25.	42.	25.
62E2	96.	75.	65.	58.	39.	71.
62E3	222.	243.	212.	64.	106.	366.
62E4	58.	17.	30.	15.	24.	36.
62E5	73.	53.	35.	10.	83.	98.
62E6	151.	130.	52.	73.	112.	159.
62E7	28.	41.	29.	24.	32.	23.
62E8	73.	92.	60.	49.	67.	124.
62C1	54.	56.	46.	40.	43.	49.
62C2	51.	53.	48.	44.	41.	55.
62C3	42.	37.	45.	13.	52.	28.
62C4	83.	107.	55.	33.	108.	110.
62C5	63.	4.	54.	0.	82.	116.
62C6	64.	127.	109.	52.	85.	70.
62C7	92.	80.	80.	28.	51.	65.
62C8	75.	84.	95.	57.	54.	34.

Table 79

SUBJECT	STAGE 4: STUDY 3 DURING CS RATE FOR 1 MIN					
	TRIAL					
	1	2	3	4	5	6
62E1	1.	0.	5.	4.	5.	2.
62E2	0.	3.	2.	2.	3.	21.
62E3	0.	1.	3.	0.	3.	39.
62E4	0.	0.	0.	0.	0.	1.
62E5	0.	0.	0.	0.	11.	7.
62E6	4.	5.	3.	17.	12.	25.
62E7	0.	1.	1.	0.	1.	1.
62E8	0.	0.	0.	0.	0.	0.
62C1	0.	0.	3.	6.	0.	4.
62C2	0.	0.	0.	0.	0.	5.
62C3	0.	2.	2.	0.	3.	5.
62C4	0.	1.	2.	1.	1.	6.
62C5	0.	0.	0.	0.	0.	0.
62C6	0.	0.	10.	0.	0.	0.
62C7	1.	0.	14.	4.	13.	10.
62C8	0.	0.	0.	0.	0.	0.

Table 80

SUBJECT	STAGE 4: STUDY 3 SUPPRESSION RATIO					
	TRIAL					
	1	2	3	4	5	6
105E1	.00	.00	.00	.00	.00	.00
105E2	.03	.00	.00	.04	.00	.17
105E3	.00	.00	.00	.00	.00	.00
105E4	.07	.07	.03	.00	.04	.00
105E5	.00	.00	.00	.00	.00	.00
105E6	.00	.02	.00	.00	.00	.02
105E7	.00	.00	.00	.00	.00	.00
105E8	.00	.00	.00	.00	.00	.00
105C1	.02	.00	.00	.04	.06	.32
105C2	.00	.05	.31	.34	.38	.37
105C3	.14	.00	.28	.09	.00	.35
105C4	.04	.31	.21	.02	.30	.45
105C5	.00	.00	.00	.00	.42	.21
105C6	.00	.00	.00	.00	.00	.00
105C7	.00	.00	.00	.00	.00	.00
105C8	.00	.00	.00	.03	.26	.38

Table 81

SUBJECT	STAGE 4: STUDY 3 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
105E1	19.	16.	22.	19.	15.	31.
105E2	111.	92.	95.	80.	105.	74.
105E3	93.	131.	117.	111.	28.	198.
105E4	43.	42.	86.	71.	71.	92.
105E5	83.	85.	25.	122.	83.	122.
105E6	151.	165.	79.	140.	97.	127.
105E7	87.	77.	59.	43.	45.	54.
105E8	122.	102.	103.	110.	95.	85.
105C1	160.	146.	153.	142.	140.	133.
105C2	60.	57.	60.	59.	40.	61.
105C3	54.	45.	70.	32.	35.	45.
105C4	137.	119.	102.	146.	89.	144.
105C5	73.	0.	0.	0.	41.	80.
105C6	8.	4.	4.	10.	6.	20.
105C7	92.	31.	39.	23.	14.	14.
105C8	103.	155.	84.	93.	92.	208.

Table 82

SUBJECT	STAGE 4: STUDY 3 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
105E1	0.	0.	0.	0.	0.	0.
105E2	1.	0.	0.	1.	0.	5.
105E3	0.	0.	0.	0.	0.	0.
105E4	1.	1.	1.	0.	1.	0.
105E5	0.	0.	0.	0.	0.	0.
105E6	0.	1.	0.	0.	0.	1.
105E7	0.	0.	0.	0.	0.	0.
105E8	0.	0.	0.	0.	0.	0.
105C1	1.	0.	0.	2.	3.	21.
105C2	0.	1.	9.	10.	8.	12.
105C3	3.	0.	9.	1.	0.	8.
105C4	2.	18.	9.	1.	13.	39.
105C5	0.	0.	0.	0.	10.	7.
105C6	0.	0.	0.	0.	0.	0.
105C7	0.	0.	0.	0.	0.	0.
105C8	0.	0.	0.	1.	11.	43.

Table 83

SUBJECT	STAGE 11 STUDY 4 SUPPRESSION RATIO TRIAL																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
62E1	.49	.53	.48	.20	.36	.40	.38	.32	.21	.32	.57	.09	.00	.22	.21	.28	.09	.24	.11	.20
62E2	.53	.53	.40	.22	.29	.33	.13	.35	.21	.50	.37	.30	.43	.35	.34	.39	.12	.47	.33	.32
62E3	.38	.38	.41	.33	.24	.29	.20	.29	.00	.00	.26	.24	.03	.00	.00	.00	.00	.00	.00	.00
62E4	.42	.42	.26	.42	.25	.26	.46	.35	.00	.32	.50	.44	.05	.08	.12	.13	.09	.15	.36	.35
62E5	.40	.47	.45	.38	.07	.00	.13	.30	.00	.00	.00	.00	.00	.03	.03	.00	.02	.00	.00	.00
62E6	.48	.34	.41	.48	.00	.00	.00	.15	.00	.00	.00	.60	.00	.00	.32	.00	.00	.00	.00	.12
62E7	.42	.56	.40	.52	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.00	.00	.60
62E8	.41	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
105E1	.50	.43	.56	.49	.49	.27	.00	.00	.30	.00	.00	.99	.00	.00	.17	.35	.04	.00	.30	.37
105E2	.06	.99	.51	.66	.22	.32	.33	.77	.00	.00	.28	.39	.49	.47	.38	.43	.10	.21	.00	.41
105E3	.49	.54	.54	.50	.44	.40	.00	.99	.99	.13	.12	.00	.00	.00	.19	.25	.00	.07	.00	.19
105E4	.55	.55	.55	.38	.21	.25	.30	.37	.00	.16	.29	.29	.19	.36	.73	.22	.35	.08	.44	.37
105E5	.53	.45	.43	.54	.50	.49	.51	.55	.44	.43	.36	.99	.42	.39	.46	.34	.22	.23	.33	.00
105E6	.51	.51	.56	.46	.50	.48	.48	.44	.33	.00	.23	.21	.25	.17	.33	.09	.31	.30	.28	.21
105E7	.58	.44	.55	.55	.18	.27	.21	.29	.04	.00	.00	.00	.00	.39	.39	.31	.24	.38	.35	.28
105E8	.51	.41	.49	.47	.99	.00	.99	.25	.00	.00	.33	.41	.44	.38	.00	.32	.00	.19	.56	.41

Table 84

SUBJECT	STAGE 1: STUDY 4 PRE-CS RATE FOR 3 MIN TRIAL																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
62E1	62.	50.	43.	37.	58.	40.	29.	13.	56.	50.	23.	29.	50.	53.	68.	79.	63.	47.	47.	49.
62E2	19.	19.	31.	21.	65.	30.	20.	34.	46.	33.	36.	35.	48.	55.	40.	42.	45.	34.	40.	50.
62E3	70.	73.	79.	91.	56.	60.	47.	45.	75.	50.	34.	67.	92.	53.	63.	57.	73.	56.	49.	49.
62E4	78.	78.	50.	71.	109.	26.	7.	22.	60.	19.	36.	19.	53.	36.	67.	58.	118.	34.	43.	45.
62E5	132.	103.	115.	60.	120.	17.	20.	35.	95.	78.	37.	62.	140.	102.	92.	101.	138.	93.	98.	98.
62E6	74.	52.	60.	39.	82.	66.	56.	51.	54.	11.	16.	4.	60.	30.	39.	31.	38.	26.	29.	44.
62E7	50.	52.	53.	63.	17.	0.	0.	0.	47.	0.	0.	0.	63.	8.	21.	16.	42.	15.	19.	4.
62E8	129.	97.	0.	49.	0.	0.	8.	0.	79.	6.	0.	2.	45.	7.	23.	2.	49.	10.	20.	8.
105E1	69.	69.	63.	75.	93.	8.	9.	0.	63.	0.	0.	0.	40.	9.	45.	11.	72.	34.	14.	26.
105E2	50.	0.	20.	14.	43.	25.	24.	10.	0.	0.	55.	28.	22.	37.	30.	32.	26.	22.	10.	17.
105E3	85.	63.	53.	36.	69.	41.	24.	0.	0.	20.	23.	0.	78.	33.	25.	64.	79.	39.	46.	63.
105E4	101.	112.	75.	101.	137.	114.	89.	92.	0.	79.	73.	59.	62.	92.	32.	90.	39.	65.	34.	57.
105E5	46.	58.	60.	49.	59.	59.	54.	62.	65.	59.	65.	0.	75.	71.	63.	71.	73.	71.	62.	10.
105E6	64.	76.	78.	88.	75.	65.	39.	61.	85.	0.	50.	11.	79.	60.	54.	59.	74.	76.	53.	58.
105E7	132.	122.	85.	93.	163.	97.	90.	88.	132.	0.	0.	75.	62.	79.	91.	80.	126.	99.	55.	137.
105E8	35.	22.	31.	30.	0.	0.	0.	9.	0.	0.	6.	13.	15.	5.	12.	13.	26.	25.	14.	17.

Table 85

SUBJECT	STAGE 1: STUDY 4 DURING CS RATE FOR 1 MIN																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
62E1	20.	20.	13.	3.	11.	9.	6.	2.	5.	8.	10.	1.	0.	5.	6.	10.	2.	5.	2.	4.
62E2	7.	7.	7.	2.	9.	5.	1.	6.	4.	11.	7.	5.	12.	10.	7.	9.	2.	10.	8.	8.
62E3	14.	15.	18.	15.	6.	8.	4.	6.	0.	0.	4.	7.	1.	0.	0.	0.	0.	0.	0.	0.
62E4	19.	19.	6.	17.	12.	3.	2.	4.	0.	3.	12.	5.	1.	1.	3.	3.	4.	2.	8.	8.
62E5	29.	31.	32.	12.	3.	0.	1.	5.	0.	0.	0.	0.	0.	1.	1.	0.	1.	0.	0.	0.
62E6	23.	9.	14.	12.	0.	0.	0.	3.	0.	0.	0.	2.	0.	0.	6.	0.	0.	0.	0.	2.
62E7	12.	22.	12.	23.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	2.
62E8	30.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105E1	23.	17.	27.	24.	30.	1.	0.	0.	9.	0.	0.	1.	0.	0.	3.	2.	1.	0.	2.	5.
105E2	1.	1.	7.	9.	4.	4.	4.	11.	0.	0.	7.	6.	7.	11.	6.	8.	1.	2.	0.	4.
105E3	27.	25.	21.	12.	18.	9.	0.	2.	1.	1.	1.	0.	0.	0.	2.	7.	0.	1.	0.	5.
105E4	41.	43.	31.	21.	12.	13.	13.	18.	0.	5.	10.	8.	5.	17.	29.	9.	7.	2.	9.	11.
105E5	17.	16.	15.	19.	20.	19.	19.	25.	17.	15.	12.	7.	18.	15.	18.	12.	7.	7.	10.	0.
105E6	22.	26.	33.	25.	25.	20.	12.	16.	14.	0.	5.	1.	9.	4.	9.	2.	11.	11.	7.	5.
105E7	62.	32.	34.	38.	12.	12.	8.	12.	2.	0.	0.	0.	0.	17.	19.	12.	13.	20.	10.	18.
105E8	12.	5.	10.	9.	2.	0.	2.	1.	0.	0.	1.	3.	4.	1.	0.	2.	0.	2.	6.	4.

Table 86

SUBJECT	STAGE 1: STUDY 4 SUPPRESSION RATIO, 45 SEC																			
	TRIAL																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
105E1	.43	.50	.49	.43	.39	.00	.00	.00	.16	.00	.00	.00	.00	.00	.15	.42	.00	.19	.36	.58
105E2	.07	.00	.44	.67	.22	.39	.45	.67	.00	.00	.07	.46	.35	.46	.29	.27	.13	.00	.00	.00
105E3	.47	.39	.51	.31	.19	.23	.25	.00	.00	.17	.15	.00	.00	.00	.00	.16	.05	.00	.08	.20
105E4	.36	.39	.18	.47	.21	.15	.18	.18	.00	.17	.35	.50	.21	.34	.68	.35	.29	.16	.48	.36
105E5	.60	.54	.46	.53	.47	.38	.45	.46	.44	.40	.46	.00	.30	.34	.41	.31	.25	.14	.34	.00
105E6	.50	.47	.38	.29	.37	.40	.29	.34	.22	.00	.24	.42	.13	.17	.13	.00	.10	.27	.31	.17
105E7	.39	.46	.50	.54	.15	.08	.24	.37	.06	.00	.00	.05	.00	.17	.43	.31	.11	.29	.27	.30
105E8	.44	.42	.44	.48	.00	.00	.00	.31	.00	.00	.40	.24	.21	.00	.00	.00	.00	.24	.36	.37

Table 87

SUBJECT	STAGE 1: STUDY 4 DURING CS RATE FOR 45 SEC																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
105E1	13.	17.	15.	14.	15.	0.	0.	0.	3.	0.	0.	0.	0.	0.	2.	2.	0.	2.	2.	9.
105E2	1.	0.	4.	7.	3.	4.	5.	5.	0.	0.	1.	6.	3.	8.	3.	3.	1.	0.	0.	0.
105E3	19.	10.	14.	4.	4.	3.	2.	0.	0.	1.	1.	0.	0.	0.	0.	3.	1.	0.	1.	4.
105E4	14.	18.	4.	22.	9.	5.	5.	5.	0.	4.	10.	15.	4.	12.	17.	13.	4.	3.	8.	8.
105E5	17.	17.	13.	14.	13.	9.	11.	13.	13.	10.	14.	0.	8.	9.	11.	8.	6.	3.	8.	0.
105E6	16.	17.	12.	9.	11.	11.	4.	8.	6.	0.	4.	2.	3.	3.	2.	0.	4.	7.	6.	3.
105E7	21.	26.	21.	27.	7.	2.	7.	13.	2.	0.	0.	1.	0.	4.	17.	9.	4.	10.	5.	15.
105E8	7.	4.	6.	7.	0.	0.	0.	1.	0.	0.	1.	1.	1.	0.	0.	0.	0.	2.	2.	2.

Table 88

SUBJECT	STAGE 2: STUDY 4 SUPPRESSION RATIO											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	.44	.14	.29	.31	.12	.08	.28	.07	.04	.08	.21	.13
62E2	.25	.35	.15	.26	.10	.32	.18	.22	.24	.10	.00	.15
62E3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
62E4	.06	.16	.10	.21	.19	.17	.04	.11	.00	.04	.00	.14
62E5	.00	.00	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00
62E6	.00	.00	.00	.00	.00	.23	.00	.00	.00	.00	.00	.00
62E7	.00	.00	.11	.00	.00	.00	.44	.34	.00	.00	.00	.00
62E8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09
62C1	.61	.56	.34	.33	.35	.26	.00	.00	.00	.43	.00	.00
62C2	.37	.49	.08	.00	.00	.00	.00	.00	.00	.00	.00	.00
62C3	.53	.39	.53	.34	.14	.00	.00	.00	.00	.00	.13	.15
62C4	.51	.52	.44	.50	.00	.42	.00	.25	.00	.00	.40	.10
62C5	.59	.46	.65	.31	.09	.00	.19	.35	.12	.53	.47	.41
62C6	.42	.24	.07	.11	.00	.00	.12	.11	.00	.00	.23	.00
62C7	.52	.44	.30	.15	.06	.00	.00	.00	.00	.00	.00	.23
62C8	.41	.61	.40	.36	.06	.14	.00	.08	.00	.10	.21	.29

Table 89

SURJECT	STAGE 2: STUDY 4 PRE-CS RATE FOR 3 MIN											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	50.	56.	52.	53.	45.	73.	69.	84.	79.	68.	68.	82.
62E2	55.	44.	52.	61.	52.	52.	54.	53.	37.	28.	34.	53.
62E3	57.	52.	52.	45.	74.	58.	74.	59.	73.	63.	57.	57.
62E4	95.	64.	55.	45.	66.	60.	69.	95.	78.	65.	50.	54.
62E5	146.	128.	97.	94.	130.	129.	99.	116.	102.	120.	117.	131.
62E6	22.	28.	33.	24.	45.	20.	27.	34.	44.	26.	19.	30.
62E7	38.	6.	24.	15.	31.	27.	35.	58.	48.	18.	57.	66.
62E8	66.	23.	18.	33.	65.	42.	34.	39.	46.	28.	29.	31.
62C1	19.	24.	35.	24.	28.	35.	14.	3.	19.	16.	39.	30.
62C2	108.	38.	71.	88.	77.	61.	56.	62.	119.	35.	20.	42.
62C3	95.	71.	27.	64.	109.	0.	0.	0.	78.	34.	63.	35.
62C4	52.	50.	66.	64.	88.	46.	37.	71.	43.	52.	50.	78.
62C5	63.	35.	18.	53.	31.	5.	25.	17.	69.	16.	17.	13.
62C6	76.	76.	122.	50.	138.	61.	45.	51.	91.	51.	30.	41.
62C7	96.	64.	69.	84.	191.	91.	67.	25.	159.	61.	30.	31.
62C8	108.	70.	54.	49.	100.	56.	20.	36.	112.	53.	33.	37.

Table 90

SUBJECT	STAGE 2: STUDY 4 DURING CS RATE FOR 1 MIN											
	1	2	3	4	5	6	7	8	9	10	11	12
62E1	13.	3.	7.	8.	2.	2.	9.	2.	1.	2.	6.	4.
62E2	6.	8.	3.	7.	2.	8.	4.	5.	4.	1.	0.	3.
62E3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
62E4	2.	4.	2.	4.	5.	4.	1.	4.	0.	1.	0.	3.
62E5	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
62E6	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.
62E7	0.	0.	1.	0.	0.	0.	9.	10.	0.	0.	0.	0.
62E8	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
62C1	10.	10.	6.	4.	5.	4.	0.	0.	0.	4.	0.	0.
62C2	21.	12.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
62C3	35.	15.	10.	11.	6.	0.	0.	0.	0.	0.	3.	2.
62C4	18.	18.	17.	21.	0.	11.	0.	8.	0.	0.	11.	3.
62C5	30.	10.	11.	8.	1.	0.	2.	3.	3.	6.	5.	3.
62C6	18.	8.	3.	2.	0.	0.	2.	2.	0.	0.	3.	0.
62C7	35.	17.	10.	5.	4.	0.	0.	0.	0.	0.	0.	3.
62C8	25.	36.	12.	9.	2.	3.	0.	1.	0.	2.	3.	5.

Table 91

SUBJECT	STAGE 2: STUDY 4 SUPPRESSION RATIO											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	.36	.47	.44	.71	.09	.12	.24	.30	.08	.27	.12	.20
105E2	.27	.57	.60	.54	.19	.32	.32	.45	.17	.00	.10	.00
105E3	.20	.24	.21	.19	.00	.00	.00	.43	.00	.00	.00	.00
105E4	.28	.54	.58	.52	.33	.49	.55	.51	.02	.11	.10	.17
105E5	.20	.26	.38	.45	.00	.08	.22	.20	.05	.10	.12	.00
105E6	.28	.50	.30	.28	.17	.30	.20	.43	.19	.32	.32	.33
105E7	.10	.47	.19	.16	.03	.10	.05	.02	.00	.00	.00	.00
105E8	.26	.69	.09	.60	.00	.00	.00	.52	.00	.53	.00	.00
105C1	.33	.31	.00	.00	.00	.00	.99	.00	.00	.00	.00	.00
105C2	.23	.00	.00	.10	.00	.03	.00	.09	.00	.00	.31	.35
105C3	.22	.13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
105C4	.42	.30	.47	.41	.03	.00	.00	.06	.00	.00	.05	.25
105C5	.20	.56	.55	.33	.36	.21	.03	.08	.00	.07	.16	.13
105C6	.50	.41	.44	.39	.00	.00	.06	.05	.00	.00	.00	.00
105C7	.31	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
105C8	.47	.51	.62	.53	.09	.07	.55	.00	.00	.00	.00	.32

Table 92

SUBJECT	STAGE 2: STUDY 4 PRE-CS RATE FOR 3 MIN											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	59.	10.	15.	6.	31.	45.	57.	55.	71.	48.	66.	49.
105E2	41.	23.	18.	18.	26.	26.	26.	22.	29.	20.	26.	25.
105E3	59.	48.	34.	26.	45.	31.	23.	16.	49.	34.	25.	28.
105E4	124.	65.	72.	109.	135.	95.	70.	101.	149.	98.	83.	71.
105E5	82.	77.	82.	83.	57.	73.	73.	72.	63.	57.	66.	69.
105E6	78.	58.	62.	63.	71.	71.	70.	68.	79.	75.	84.	79.
105E7	161.	64.	77.	142.	170.	135.	111.	138.	164.	95.	111.	78.
105E8	25.	11.	30.	12.	19.	12.	18.	14.	18.	16.	16.	14.
105C1	48.	41.	0.	0.	35.	0.	0.	0.	35.	0.	0.	0.
105C2	119.	108.	48.	52.	75.	89.	31.	29.	104.	57.	27.	34.
105C3	96.	61.	77.	57.	56.	51.	43.	47.	78.	42.	24.	28.
105C4	58.	84.	83.	74.	93.	64.	43.	47.	76.	65.	58.	36.
105C5	184.	96.	99.	140.	196.	104.	94.	110.	170.	171.	124.	146.
105C6	67.	68.	65.	56.	59.	29.	47.	61.	73.	52.	45.	41.
105C7	27.	21.	0.	0.	25.	0.	0.	0.	15.	0.	0.	0.
105C8	27.	37.	28.	38.	31.	41.	5.	0.	48.	6.	0.	32.

Table 93

SUBJECT	STAGE 2: STUDY 4 DURING CS RATE FOR 1 MIN TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	11.	3.	4.	5.	1.	2.	6.	8.	2.	6.	3.	4.
105E2	5.	10.	9.	7.	2.	4.	4.	6.	2.	0.	1.	0.
105E3	5.	5.	3.	2.	0.	0.	0.	4.	0.	0.	0.	0.
105E4	16.	25.	33.	39.	22.	30.	28.	35.	1.	4.	3.	5.
105E5	7.	9.	17.	23.	0.	2.	7.	6.	1.	2.	3.	0.
105E6	10.	19.	9.	8.	5.	10.	6.	17.	6.	12.	13.	13.
105E7	6.	19.	6.	9.	2.	5.	2.	1.	0.	0.	0.	0.
105E8	3.	8.	1.	6.	0.	0.	0.	5.	0.	6.	0.	0.
105C1	8.	6.	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
105C2	12.	0.	0.	2.	0.	1.	0.	1.	0.	0.	4.	6.
105C3	9.	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105C4	14.	12.	25.	17.	1.	0.	0.	1.	0.	0.	1.	4.
105C5	15.	41.	41.	23.	36.	9.	1.	3.	0.	4.	8.	7.
105C6	22.	16.	17.	12.	0.	0.	1.	1.	0.	0.	0.	0.
105C7	4.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105C8	8.	13.	15.	14.	1.	1.	2.	0.	0.	0.	0.	5.

Table 95

SUBJECT	STAGE 2: STUDY 4 DURING CS RATE FOR 45 SEC											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
105E1	1.	4.	1.	1.	0.	2.	2.	2.	1.	3.	1.	2.
105E2	0.	2.	0.	1.	0.	0.	0.	0.	0.	1.	0.	3.
105E3	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105E4	0.	9.	8.	18.	8.	7.	16.	16.	0.	3.	2.	1.
105E5	3.	4.	1.	1.	1.	0.	0.	1.	1.	0.	1.	0.
105E6	6.	3.	4.	4.	2.	3.	3.	7.	3.	8.	10.	6.
105E7	3.	1.	7.	1.	2.	2.	0.	2.	1.	0.	1.	1.
105E8	0.	2.	2.	7.	0.	1.	2.	2.	0.	1.	2.	1.
105C1	3.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105C2	7.	1.	3.	1.	1.	0.	0.	0.	0.	0.	0.	0.
105C3	11.	0.	0.	2.	0.	0.	0.	0.	0.	2.	0.	0.
105C4	13.	13.	17.	19.	2.	1.	2.	0.	0.	0.	1.	1.
105C5	34.	28.	15.	10.	39.	9.	6.	4.	1.	4.	6.	8.
105C6	14.	11.	11.	11.	2.	2.	1.	1.	0.	0.	0.	0.
105C7	5.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
105C8	5.	16.	3.	5.	0.	0.	0.	0.	0.	0.	0.	2.

Table 96

SUBJECT	STAGE 3: STUDY 4 SUPPRESSION RATIO					
	TRIAL					
	1	2	3	4	5	6
62E1	.47	.52	.12	.03	.06	.10
62E2	.41	.45	.22	.18	.00	.17
62E3	.49	.48	.66	.00	.00	.00
62E4	.36	.10	.00	.03	.06	.00
62E5	.49	.51	.50	.00	.00	.02
62E6	.56	.11	.43	.00	.00	.18
62E7	.38	.53	.27	.00	.00	.00
62E8	.26	.00	.00	.00	.00	.00
62C1	.00	.19	.00	.00	.23	.00
62C2	.00	.00	.00	.43	.00	.04
62C3	.69	.00	.11	.13	.08	.10
62C4	.09	.03	.47	.00	.07	.19
62C5	.61	.44	.28	.16	.15	.13
62C6	.31	.21	.00	.13	.03	.13
62C7	.56	.49	.11	.10	.02	.03
62C8	.00	.10	.09	.00	.03	.02

Table 97

SUBJECT	STAGE 3: STUDY 4 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
62E1	102.	83.	90.	100.	93.	110.
62E2	51.	63.	42.	56.	0.	72.
62E3	53.	56.	36.	85.	59.	90.
62E4	70.	80.	83.	90.	87.	99.
62E5	132.	124.	148.	121.	187.	190.
62E6	47.	25.	36.	32.	0.	54.
62E7	40.	37.	49.	64.	66.	36.
62E8	93.	74.	89.	75.	37.	15.
62C1	19.	25.	20.	28.	31.	31.
62C2	96.	98.	95.	91.	0.	71.
62C3	45.	76.	70.	80.	74.	81.
62C4	90.	99.	51.	26.	118.	88.
62C5	38.	46.	47.	46.	52.	60.
62C6	101.	89.	101.	79.	101.	121.
62C7	125.	121.	139.	138.	157.	115.
62C8	71.	26.	63.	42.	117.	127.

Table 98

SUBJECT	STAGE 3: STUDY 4 DURING CS RATE FOR 1 MIN					
	1	2	3	4	5	6
62E1	30.	30.	4.	1.	2.	4.
62E2	12.	17.	4.	4.	0.	5.
62E3	17.	17.	23.	0.	0.	0.
62E4	13.	3.	0.	1.	2.	0.
62E5	42.	43.	50.	0.	0.	1.
62E6	20.	1.	9.	0.	0.	4.
62E7	8.	14.	6.	0.	0.	0.
62E8	11.	0.	0.	0.	0.	0.
62C1	0.	2.	0.	0.	3.	0.
62C2	0.	0.	0.	23.	0.	1.
62C3	33.	0.	3.	4.	2.	3.
62C4	3.	1.	15.	0.	3.	7.
62C5	20.	12.	6.	3.	3.	3.
62C6	15.	8.	0.	4.	1.	6.
62C7	53.	38.	6.	5.	1.	1.
62C8	0.	1.	2.	0.	1.	1.

Table 99

SUBJECT	STAGE 3: STUDY 4 SUPPRESSION RATIO					
	TRIAL					
	1	2	3	4	5	6
105E1	.55	.10	.14	.09	.00	.03
105E2	.55	.15	.00	.26	.00	.18
105E3	.56	.00	.00	.00	.00	.00
105E4	.16	.04	.07	.00	.20	.07
105E5	.49	.13	.33	.23	.05	.12
105E6	.48	.46	.09	.22	.13	.17
105E7	.51	.75	.16	.07	.09	.03
105E8	.59	.36	.14	.64	.00	.27
105C1	.48	.15	.00	.00	.00	.00
105C2	.00	.00	.00	.00	.00	.02
105C3	.11	.08	.16	.09	.05	.03
105C4	.24	.06	.03	.09	.00	.09
105C5	.14	.25	.23	.13	.07	.00
105C6	.43	.00	.00	.00	.00	.03
105C7	.00	.00	.00	.00	.00	.00
105C8	.00	.00	.24	.11	.29	.09

Table 100

SUBJECT	STAGE 3: STUDY 4 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
105E1	77.	78.	36.	60.	62.	90.
105E2	34.	33.	24.	25.	0.	27.
105E3	19.	13.	9.	12.	54.	49.
105E4	77.	82.	40.	105.	86.	79.
105E5	59.	62.	61.	61.	54.	64.
105E6	56.	67.	64.	65.	79.	71.
105E7	161.	58.	227.	113.	187.	202.
105E8	23.	21.	19.	15.	29.	16.
105C1	42.	51.	37.	35.	47.	36.
105C2	113.	93.	95.	96.	155.	184.
105C3	71.	71.	64.	118.	104.	83.
105C4	84.	102.	91.	59.	104.	93.
105C5	108.	132.	130.	181.	124.	164.
105C6	69.	74.	70.	168.	79.	87.
105C7	15.	17.	26.	37.	28.	15.
105C8	39.	54.	48.	25.	44.	31.

Table 101

SUBJECT	STAGE 3: STUDY 4 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
105E1	31.	3.	2.	2.	0.	1.
105E2	14.	2.	0.	3.	0.	2.
105E3	8.	0.	0.	0.	0.	0.
105E4	5.	1.	1.	0.	7.	2.
105E5	19.	3.	10.	6.	1.	3.
105E6	17.	19.	2.	6.	4.	5.
105E7	56.	57.	14.	3.	6.	2.
105E8	11.	4.	1.	9.	0.	2.
105C1	13.	3.	0.	0.	0.	0.
105C2	0.	0.	0.	0.	0.	1.
105C3	3.	2.	4.	4.	2.	1.
105C4	9.	2.	1.	2.	0.	3.
105C5	6.	15.	13.	9.	3.	0.
105C6	17.	0.	0.	0.	0.	1.
105C7	0.	0.	0.	0.	0.	0.
105C8	0.	0.	5.	1.	6.	1.

Table 102

SUBJECT	STAGE 4: STUDY 4 SUPPRESSION RATIO TRIAL					
	1	2	3	4	5	6
62E1	.02	.00	.00	.00	.12	.09
62E2	.00	.00	.27	.25	.50	.14
62E3	.00	.00	.00	.03	.05	.00
62E4	.03	.00	.00	.00	.00	.00
62E5	.00	.00	.00	.00	.00	.12
62E6	.00	.00	.00	.00	.00	.00
62E7	.00	.00	.00	.00	.00	.00
62E8	.00	.00	.00	.35	.03	.00
62C1	.00	.00	.00	.28	.16	.10
62C2	.00	.04	.00	.00	.00	.16
62C3	.23	.15	.08	.26	.14	.26
62C4	.00	.00	.31	.42	.49	.34
62C5	.21	.14	.23	.25	.32	.35
62C6	.02	.00	.00	.00	.00	.00
62C7	.00	.04	.04	.07	.11	.32
62C8	.05	.00	.00	.07	.02	.31

Table 103

SUBJECT	STAGE 4: STUDY 4 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
62E1	126.	102.	150.	108.	92.	92.
62E2	55.	42.	49.	36.	39.	36.
62E3	58.	54.	102.	104.	108.	56.
62E4	91.	73.	61.	94.	45.	83.
62E5	131.	116.	160.	125.	142.	199.
62E6	36.	39.	60.	56.	60.	77.
62E7	4.	33.	53.	78.	61.	61.
62E8	36.	51.	81.	28.	99.	49.
62C1	35.	22.	34.	31.	31.	28.
62C2	81.	67.	113.	79.	43.	78.
62C3	51.	53.	73.	60.	56.	35.
62C4	53.	96.	119.	86.	68.	64.
62C5	44.	55.	41.	55.	52.	44.
62C6	149.	67.	131.	120.	20.	114.
62C7	136.	152.	153.	118.	139.	185.
62C8	114.	156.	146.	114.	122.	111.

Table 104

SUBJECT	STAGE 4: STUDY 4 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
62E1	1.	0.	0.	0.	4.	3.
62E2	0.	0.	6.	4.	13.	2.
62E3	0.	0.	0.	1.	2.	0.
62E4	1.	0.	0.	0.	0.	0.
62E5	0.	0.	0.	0.	0.	9.
62E6	0.	0.	0.	0.	0.	0.
62E7	0.	0.	0.	0.	0.	0.
62E8	0.	0.	0.	5.	1.	0.
62C1	0.	0.	0.	4.	2.	1.
62C2	0.	1.	0.	0.	0.	5.
62C3	5.	3.	2.	7.	3.	4.
62C4	0.	0.	18.	21.	22.	11.
62C5	4.	3.	4.	6.	8.	8.
62C6	1.	0.	0.	0.	0.	0.
62C7	0.	2.	2.	3.	6.	29.
62C8	2.	0.	0.	3.	1.	17.

Table 105

SUBJECT	STAGE 4: STUDY 4 SUPPRESSION RATIO					
	TRIAL					
	1	2	3	4	5	6
105E1	.03	.00	.00	.12	.05	.03
105E2	.17	.43	.19	.44	.39	.39
105E3	.00	.00	.00	.00	.00	.00
105E4	.00	.04	.09	.05	.10	.48
105E5	.00	.04	.10	.14	.04	.11
105E6	.16	.20	.06	.05	.27	.51
105E7	.11	.00	.02	.06	.00	.00
105E8	.00	.00	.00	.00	.00	.00
105C1	.07	.00	.00	.00	.05	.29
105C2	.00	.03	.02	.05	.05	.00
105C3	.03	.00	.00	.15	.07	.04
105C4	.05	.04	.00	.11	.11	.24
105C5	.02	.02	.01	.01	.01	.16
105C6	.00	.00	.00	.00	.24	.00
105C7	.00	.00	.00	.13	.12	.59
105C8	.00	.35	.18	.23	.31	.08

Table 106

SUBJECT	STAGE 4: STUDY 4 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
105E1	102.	110.	115.	110.	115.	101.
105E2	43.	20.	25.	27.	28.	38.
105E3	33.	27.	21.	15.	18.	15.
105E4	97.	73.	127.	63.	84.	29.
105E5	66.	77.	79.	56.	67.	47.
105E6	78.	59.	100.	56.	81.	79.
105E7	51.	139.	174.	142.	176.	60.
105E8	18.	19.	19.	26.	21.	21.
105C1	40.	33.	42.	38.	60.	29.
105C2	155.	111.	153.	160.	174.	87.
105C3	91.	136.	114.	133.	125.	132.
105C4	110.	138.	139.	99.	97.	84.
105C5	121.	170.	204.	240.	262.	260.
105C6	65.	83.	91.	60.	67.	57.
105C7	27.	49.	48.	59.	22.	27.
105C8	26.	22.	42.	40.	34.	37.

Table 107

SUBJECT	STAGE 4: STUDY 4 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
105E1	1.	0.	0.	5.	2.	1.
105E2	3.	5.	2.	7.	6.	8.
105E3	0.	0.	0.	0.	0.	0.
105E4	0.	1.	4.	1.	3.	9.
105E5	0.	1.	3.	3.	1.	2.
105E6	5.	5.	2.	1.	10.	27.
105E7	2.	0.	1.	3.	0.	0.
105E8	0.	0.	0.	0.	0.	0.
105C1	1.	0.	0.	0.	1.	4.
105C2	0.	1.	1.	3.	3.	0.
105C3	1.	0.	0.	8.	3.	2.
105C4	2.	2.	0.	4.	4.	9.
105C5	1.	1.	1.	1.	1.	16.
105C6	0.	0.	0.	0.	7.	0.
105C7	0.	0.	0.	3.	1.	13.
105C8	0.	4.	3.	4.	5.	1.

Table 109

SUBJECT	STAGE 1: STUDY 5 PRE-CS RATE FOR 3 MIN																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LTE1	114.	113.	101.	91.	107.	59.	33.	20.	92.	42.	51.	45.	44.	35.	20.	26.	84.	52.	16.	36.
LTE2	45.	38.	33.	36.	42.	44.	35.	18.	32.	42.	30.	14.	37.	24.	19.	18.	32.	33.	25.	27.
LTE3	93.	81.	56.	55.	92.	51.	40.	36.	88.	36.	54.	63.	103.	66.	64.	92.	75.	73.	64.	78.
LTE4	23.	36.	52.	47.	31.	37.	35.	44.	51.	52.	50.	38.	40.	47.	55.	49.	44.	34.	38.	31.
LTE5	67.	75.	85.	55.	77.	43.	0.	0.	66.	4.	34.	35.	49.	40.	55.	61.	54.	45.	41.	42.
LTE6	136.	89.	25.	47.	110.	41.	43.	57.	61.	57.	42.	62.	39.	24.	36.	23.	80.	62.	53.	58.
LTE7	23.	8.	19.	7.	28.	0.	6.	36.	36.	20.	19.	33.	25.	23.	13.	28.	30.	12.	15.	24.
LTE8	44.	31.	33.	30.	58.	20.	31.	16.	36.	22.	14.	21.	30.	13.	22.	17.	41.	28.	26.	27.
1LE1	85.	65.	74.	34.	61.	12.	0.	1.	65.	0.	0.	3.	97.	55.	26.	21.	79.	8.	19.	13.
1LE2	114.	70.	82.	34.	41.	27.	11.	16.	56.	35.	8.	35.	52.	21.	22.	21.	51.	34.	30.	30.
1LE3	74.	83.	88.	61.	51.	47.	28.	0.	61.	51.	32.	52.	77.	70.	69.	57.	74.	63.	68.	76.
1LE4	58.	47.	60.	55.	76.	29.	44.	61.	49.	39.	34.	41.	113.	117.	117.	62.	76.	57.	76.	111.
1LE5	51.	45.	35.	61.	14.	18.	14.	8.	58.	43.	60.	38.	48.	24.	27.	42.	74.	57.	74.	80.
1LE6	65.	62.	37.	88.	0.	0.	0.	0.	0.	19.	14.	0.	45.	0.	0.	0.	48.	5.	7.	42.
1LE7	60.	0.	9.	38.	21.	29.	36.	21.	32.	26.	27.	15.	30.	23.	24.	14.	25.	14.	25.	2.
1LE8	0.	28.	36.	47.	6.	0.	0.	1.	32.	35.	7.	33.	29.	26.	43.	31.	10.	1.	4.	2.

Table 111

SUBJECT	STAGE 2: STUDY 5 SUPPRESSION RATIO											
	1	2	3	4	5	6	7	8	9	10	11	12
LTE1	.03	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00	.00
LTE2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.12
LTE3	.03	.13	.15	.03	.00	.00	.04	.14	.00	.00	.14	.08
LTE4	.00	.00	.33	.27	.05	.19	.43	.00	.10	.00	.12	.00
LTE5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
LTE6	.21	.14	.14	.39	.21	.19	.18	.36	.00	.00	.00	.04
LTE7	.00	.00	.09	.00	.24	.10	.10	.19	.13	.00	.00	.00
LTE8	.27	.09	.39	.28	.06	.00	.00	.13	.07	.15	.15	.18
LTC1	.22	.49	.23	.15	.00	.32	.99	.39	.00	.00	.00	.00
LTC2	.52	.00	.00	.00	.00	.00	.40	.00	.60	.30	.68	.75
LTC3	.55	.42	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00
LTC4	.41	.46	.48	.51	.22	.11	.00	.00	.00	.00	.00	.00
LTC5	.53	.48	.43	.39	.03	.00	.00	.19	.00	.00	.00	.09
LTC6	.43	.26	.22	.43	.13	.00	.00	.00	.00	.00	.00	.19
LTC7	.51	.57	.36	.53	.00	.28	.46	.00	.04	.18	.00	.16
LTC8	.51	.36	.38	.22	.00	.00	.00	.15	.00	.37	.00	.08

Table 112

STAGE 2: STUDY 5 PRE-CS RATE FOR 3 MIN

SUBJECT	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
LTE1	90.	56.	48.	45.	82.	22.	58.	55.	76.	74.	68.	64.
LTE2	31.	35.	22.	25.	40.	21.	21.	22.	34.	28.	19.	23.
LTE3	108.	97.	116.	89.	115.	80.	79.	96.	104.	95.	126.	130.
LTE4	40.	65.	49.	67.	55.	39.	55.	28.	53.	61.	44.	54.
LTE5	51.	48.	50.	40.	53.	45.	50.	50.	42.	42.	37.	42.
LTE6	33.	56.	38.	47.	69.	52.	41.	42.	71.	83.	80.	81.
LTE7	19.	27.	29.	33.	29.	28.	27.	25.	40.	32.	31.	27.
LTE8	40.	30.	14.	23.	50.	9.	25.	21.	39.	33.	35.	42.
LTC1	126.	90.	120.	86.	109.	65.	0.	43.	157.	5.	0.	0.
LTC2	14.	6.	2.	1.	21.	15.	18.	0.	10.	21.	10.	6.
LTC3	55.	90.	71.	39.	87.	44.	60.	0.	83.	55.	37.	21.
LTC4	51.	61.	51.	38.	73.	75.	50.	33.	70.	67.	36.	52.
LTC5	91.	97.	77.	93.	101.	89.	65.	13.	88.	53.	36.	58.
LTC6	177.	165.	106.	113.	154.	61.	6.	17.	168.	86.	132.	116.
LTC7	58.	46.	38.	38.	56.	46.	21.	36.	75.	54.	66.	46.
LTC8	34.	38.	39.	32.	42.	59.	26.	34.	47.	31.	27.	33.

Table 113

SURJECT	STAGE 2: STUDY 5 DURING CS RATE FOR 1 MIN											
	1	2	3	4	5	6	7	8	9	10	11	12
LTE1	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
LTE2	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
LTE3	1.	5.	7.	1.	0.	0.	1.	5.	0.	0.	7.	4.
LTE4	0.	0.	8.	9.	1.	3.	14.	0.	2.	0.	2.	0.
LTE5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
LTE6	3.	3.	2.	10.	6.	4.	3.	8.	0.	0.	0.	1.
LTE7	0.	0.	1.	0.	3.	1.	1.	2.	2.	0.	0.	0.
LTE8	5.	1.	3.	3.	1.	0.	0.	1.	1.	2.	2.	3.
LTC1	12.	29.	12.	5.	0.	10.	2.	9.	0.	0.	0.	0.
LTC2	5.	0.	0.	0.	0.	0.	4.	0.	5.	3.	7.	6.
LTC3	22.	22.	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
LTC4	12.	17.	16.	13.	7.	3.	0.	0.	0.	0.	0.	0.
LTC5	34.	30.	19.	20.	1.	0.	0.	1.	0.	0.	0.	2.
LTC6	44.	19.	10.	28.	8.	0.	0.	0.	0.	0.	0.	9.
LTC7	20.	20.	7.	14.	0.	6.	6.	0.	1.	4.	0.	3.
LTC8	12.	7.	8.	3.	0.	0.	0.	2.	0.	6.	0.	1.

Table 115

SUBJECT	STAGE 2: STUDY 5 PRE-CS RATE FOR 3 MIN											
	1	2	3	4	5	6	7	8	9	10	11	12
TLE1	68.	25.	11.	86.	21.	7.	20.	20.	49.	70.	60.	53.
TLE2	31.	37.	35.	29.	40.	23.	24.	22.	38.	35.	25.	50.
TLE3	74.	89.	79.	71.	80.	61.	69.	69.	84.	81.	74.	78.
TLE4	89.	33.	30.	71.	76.	69.	98.	98.	95.	102.	94.	94.
TLE5	51.	39.	54.	71.	69.	47.	49.	65.	94.	97.	87.	97.
TLE6	55.	3.	18.	24.	2.	15.	18.	20.	63.	29.	36.	39.
TLE7	30.	5.	8.	4.	50.	19.	7.	6.	39.	30.	28.	46.
TLE8	34.	31.	32.	44.	43.	42.	34.	39.	28.	36.	38.	24.
TLC1	37.	43.	41.	35.	47.	1.	0.	0.	0.	0.	0.	0.
TLC2	75.	49.	31.	33.	80.	35.	39.	25.	58.	34.	23.	4.
TLC3	160.	66.	84.	108.	132.	69.	32.	45.	147.	83.	108.	83.
TLC4	60.	42.	71.	31.	57.	19.	34.	34.	64.	55.	51.	38.
TLC5	75.	59.	64.	59.	84.	62.	55.	20.	79.	44.	53.	45.
TLC6	113.	97.	109.	120.	58.	0.	0.	0.	121.	0.	70.	61.
TLC7	38.	26.	32.	23.	37.	0.	0.	0.	2.	0.	0.	1.
TLC8	13.	8.	27.	14.	7.	0.	0.	0.	8.	16.	4.	5.

Table 116

[illegible]

Table 117

SUBJECT	STAGE 2: STUDY 5 SUPPRESSION RATIO, 45 SEC											
	1	2	3	4	5	6	7	8	9	10	11	12
LTE1	.40	.39	.45	.47	.44	.48	.29	.30	.32	.27	.29	.06
LTE2	.28	.19	.42	.24	.23	.16	.16	.15	.00	.00	.30	.15
LTE3	.33	.43	.41	.56	.44	.43	.45	.37	.32	.34	.39	.43
LTE4	.41	.33	.33	.26	.34	.42	.44	.61	.51	.40	.45	.71
LTE5	.35	.37	.47	.44	.50	.35	.19	.36	.16	.00	.00	.09
LTE6	.42	.26	.46	.37	.22	.24	.00	.00	.00	.00	.00	.09
LTE7	.56	.43	.41	.33	.22	.22	.37	.32	.17	.11	.21	.43
LTE8	.17	.40	.22	.51	.19	.47	.14	.28	.17	.11	.19	.32
LTC1	.18	.44	.35	.30	.04	.00	.00	.32	.00	.00	.00	.00
LTC2	.00	.00	.00	.00	.00	.00	.00	.00	.44	.28	.44	.40
LTC3	.42	.40	.34	.00	.04	.00	.00	.00	.00	.00	.00	.00
LTC4	.19	.31	.41	.39	.43	.27	.07	.11	.05	.00	.00	.00
LTC5	.44	.41	.47	.47	.39	.08	.06	.00	.04	.00	.18	.06
LTC6	.27	.24	.18	.39	.39	.21	.67	.41	.02	.04	.06	.00
LTC7	.38	.44	.39	.54	.00	.30	.00	.10	.05	.07	.15	.08
LTC8	.51	.54	.45	.33	.40	.00	.00	.19	.08	.34	.00	.20

Table 118

STAGE 2: STUDY 5 DURING CS RATE FOR 45 SEC

SUBJECT	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
LTE1	15.	9.	10.	10.	16.	5.	6.	6.	9.	7.	7.	1.
LTE2	3.	2.	4.	2.	3.	1.	1.	1.	0.	0.	2.	1.
LTE3	13.	18.	20.	28.	23.	15.	16.	14.	12.	12.	20.	25.
LTE4	7.	8.	6.	6.	7.	7.	11.	11.	14.	10.	9.	33.
LTE5	7.	7.	11.	8.	13.	6.	3.	7.	2.	0.	0.	1.
LTE6	6.	5.	8.	7.	5.	4.	0.	0.	0.	0.	0.	2.
LTE7	6.	5.	5.	4.	2.	2.	4.	3.	2.	1.	2.	5.
LTE8	2.	5.	1.	6.	3.	2.	1.	2.	2.	1.	2.	5.
LTC1	7.	18.	16.	9.	1.	0.	0.	5.	0.	0.	0.	0.
LTC2	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	2.	1.
LTC3	10.	15.	9.	0.	1.	0.	0.	0.	0.	0.	0.	0.
LTC4	3.	7.	9.	6.	14.	7.	1.	1.	1.	0.	0.	0.
LTC5	18.	17.	17.	21.	16.	2.	1.	0.	1.	0.	2.	1.
LTC6	16.	13.	6.	18.	25.	4.	3.	3.	1.	1.	2.	0.
LTC7	9.	9.	6.	11.	0.	5.	0.	1.	1.	1.	3.	1.
LTC8	9.	11.	8.	4.	7.	0.	0.	2.	1.	4.	0.	2.

Table 120

SURJECT	STAGE 2: STUDY 5 DURING CS RATE FOR 45 SEC											
	TRIAL											
	1	2	3	4	5	6	7	8	9	10	11	12
TLE1	4.	5.	5.	16.	2.	0.	0.	0.	0.	0.	0.	0.
TLE2	7.	9.	10.	6.	7.	7.	5.	4.	7.	5.	5.	10.
TLE3	20.	15.	13.	13.	16.	15.	32.	12.	13.	7.	11.	10.
TLE4	5.	5.	6.	3.	1.	0.	2.	0.	1.	1.	3.	10.
TLE5	15.	6.	11.	17.	16.	8.	9.	14.	11.	21.	6.	7.
TLE6	5.	1.	5.	5.	2.	0.	1.	0.	0.	4.	4.	3.
TLE7	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TLE8	8.	6.	11.	5.	5.	3.	5.	1.	10.	7.	3.	12.
TLC1	15.	10.	10.	3.	2.	2.	0.	0.	0.	0.	0.	0.
TLC2	11.	5.	5.	6.	11.	4.	3.	6.	3.	2.	2.	1.
TLC3	13.	10.	11.	16.	22.	1.	0.	0.	0.	0.	0.	0.
TLC4	10.	8.	13.	5.	13.	7.	1.	5.	1.	5.	1.	0.
TLC5	12.	2.	9.	9.	3.	0.	0.	0.	1.	0.	0.	1.
TLC6	14.	27.	18.	17.	0.	0.	0.	0.	0.	0.	0.	0.
TLC7	5.	2.	15.	3.	0.	0.	0.	0.	0.	0.	0.	0.
TLC8	3.	3.	1.	2.	0.	0.	0.	0.	0.	0.	0.	0.

Table 121

SUBJECT	STAGE 3: STUDY 5 SUPPRESSION RATIO					
	TRIAL					
	1	2	3	4	5	6
LTE1	.44	.33	.07	.00	.00	.12
LTE2	.00	.00	.00	.08	.00	.04
LTE3	.42	.46	.40	.43	.15	.08
LTE4	.65	.63	.61	.70	.10	.00
LTE5	.45	.55	.00	.00	.00	.00
LTE6	.00	.10	.00	.09	.34	.10
LTE7	.41	.37	.07	.00	.00	.00
LTE8	.13	.04	.12	.16	.00	.00
LTC1	.00	.00	.04	.13	.00	.17
LTC2	.41	.35	.14	.00	.38	.33
LTC3	.00	.00	.00	.00	.00	.00
LTC4	.00	.04	.08	.00	.00	.00
LTC5	.35	.30	.20	.00	.00	.00
LTC6	.32	.00	.00	.00	.00	.06
LTC7	.00	.00	.13	.29	.23	.05
LTC8	.04	.16	.05	.00	.00	.00

Table 122

SUBJECT	STAGE 3: STUDY 5 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
LTE1	84.	108.	84.	96.	75.	91.
LTE2	48.	50.	64.	69.	49.	69.
LTE3	147.	99.	115.	102.	159.	147.
LTE4	21.	47.	36.	31.	77.	91.
LTE5	59.	39.	42.	53.	56.	63.
LTE6	90.	109.	104.	88.	83.	106.
LTE7	44.	46.	38.	33.	34.	28.
LTE8	77.	70.	64.	94.	16.	43.
LTC1	75.	91.	77.	84.	94.	15.
LTC2	13.	11.	18.	11.	10.	12.
LTC3	54.	59.	58.	79.	85.	91.
LTC4	93.	80.	98.	51.	55.	16.
LTC5	144.	133.	133.	128.	164.	87.
LTC6	101.	95.	190.	192.	224.	173.
LTC7	62.	70.	42.	29.	50.	57.
LTC8	80.	62.	61.	101.	76.	90.

Table 123

SUBJECT	STAGE 3: STUDY 5 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
LTE1	22.	18.	2.	0.	0.	4.
LTE2	0.	0.	0.	2.	0.	1.
LTE3	35.	28.	26.	26.	9.	4.
LTE4	13.	27.	19.	24.	3.	0.
LTE5	16.	16.	0.	0.	0.	0.
LTE6	0.	4.	0.	3.	14.	4.
LTE7	10.	9.	1.	0.	0.	0.
LTE8	4.	1.	3.	6.	0.	0.
LTC1	0.	0.	1.	4.	0.	1.
LTC2	3.	2.	1.	0.	2.	2.
LTC3	0.	0.	0.	0.	0.	0.
LTC4	0.	1.	3.	0.	0.	0.
LTC5	26.	19.	11.	0.	0.	0.
LTC6	16.	0.	0.	0.	0.	4.
LTC7	0.	0.	2.	4.	5.	1.
LTC8	1.	4.	1.	0.	0.	0.

Table 124

SUBJECT	STAGE 4: STUDY 5 SUPPRESSION RATIO					
	TRIAL					
	1	2	3	4	5	6
TLE1	.00	.00	.00	.00	.00	.00
TLE2	.60	.69	.67	.20	.00	.00
TLE3	.38	.53	.00	.13	.00	.05
TLE4	.42	.40	.17	.11	.00	.00
TLE5	.53	.56	.51	.00	.00	.00
TLE6	.33	.41	.15	.00	.11	.00
TLE7	.39	.00	.00	.00	.00	.00
TLE8	.38	.51	.48	.54	.40	.49
TLC1	.41	.34	.00	.00	.00	.00
TLC2	.49	.00	.00	.00	.19	.00
TLC3	.53	.00	.00	.00	.00	.00
TLC4	.55	.00	.00	.00	.00	.00
TLC5	.37	.21	.00	.00	.00	.00
TLC6	.42	.47	.00	.00	.05	.00
TLC7	.30	.00	.00	.00	.00	.00
TLC8	.69	.00	.00	.00	.00	.00

Table 125

SUBJECT	STAGE 4: STUDY 5 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
TLE1	45.	86.	60.	62.	70.	46.
TLE2	20.	19.	18.	35.	19.	19.
TLE3	69.	88.	70.	39.	70.	60.
TLE4	111.	132.	133.	98.	172.	83.
TLE5	76.	36.	43.	73.	80.	79.
TLE6	108.	83.	102.	80.	72.	42.
TLE7	37.	32.	44.	44.	18.	50.
TLE8	24.	46.	36.	39.	76.	37.
TLC1	55.	47.	51.	54.	50.	47.
TLC2	101.	104.	95.	92.	90.	68.
TLC3	246.	201.	177.	246.	283.	176.
TLC4	42.	71.	63.	67.	66.	103.
TLC5	128.	188.	147.	118.	253.	123.
TLC6	134.	120.	149.	161.	184.	126.
TLC7	99.	66.	46.	54.	54.	55.
TLC8	12.	7.	8.	15.	16.	14.

Table 126

SUBJECT	STAGE 4: STUDY 5 DURING CS RATE FOR 1 MIN					
	TRIAL					
	1	2	3	4	5	6
TLE1	0.	0.	0.	0.	0.	0.
TLE2	10.	14.	12.	3.	0.	0.
TLE3	14.	33.	0.	2.	0.	1.
TLE4	27.	29.	9.	4.	0.	0.
TLE5	28.	15.	15.	0.	0.	0.
TLE6	18.	19.	6.	0.	3.	0.
TLE7	8.	0.	0.	0.	0.	0.
TLE8	5.	16.	11.	15.	17.	12.
TLC1	13.	8.	0.	0.	0.	0.
TLC2	32.	0.	0.	0.	7.	0.
TLC3	94.	0.	0.	0.	0.	0.
TLC4	17.	0.	0.	0.	0.	0.
TLC5	25.	17.	0.	0.	0.	0.
TLC6	32.	36.	0.	0.	3.	0.
TLC7	14.	0.	0.	0.	0.	0.
TLC8	9.	0.	0.	0.	0.	0.

Table 127

SUBJECT	STAGE 3: STUDY 5 SUPPRESSION RATIO, 45 SEC					
	TRIAL					
	1	2	3	4	5	6
LTE1	.34	.36	.05	.00	.00	.00
LTE2	.00	.00	.00	.00	.00	.00
LTE3	.28	.42	.29	.41	.15	.05
LTE4	.57	.63	.57	.56	.29	.12
LTE5	.46	.34	.09	.07	.00	.00
LTE6	.08	.00	.00	.00	.09	.04
LTE7	.35	.34	.17	.00	.00	.00
LTE8	.17	.05	.11	.15	.33	.16
LTC1	.00	.00	.00	.00	.00	.00
LTC2	.00	.00	.00	.00	.44	.00
LTC3	.00	.00	.00	.00	.00	.00
LTC4	.00	.23	.11	.00	.00	.00
LTC5	.20	.17	.08	.00	.00	.00
LTC6	.04	.08	.02	.00	.02	.02
LTC7	.31	.00	.09	.12	.07	.12
LTC8	.00	.21	.06	.00	.00	.00

Table 128

SUBJECT	STAGE 3: STUDY 5 DURING CS RATE FOR 45 SEC					
	TRIAL					
	1	2	3	4	5	6
LTE1	11.	15.	1.	0.	0.	0.
LTE2	0.	0.	0.	0.	0.	0.
LTE3	14.	18.	12.	18.	7.	2.
LTE4	7.	20.	12.	10.	8.	3.
LTE5	12.	5.	1.	1.	0.	0.
LTE6	2.	0.	0.	0.	2.	1.
LTE7	6.	6.	2.	0.	0.	0.
LTE8	4.	1.	2.	4.	2.	2.
LTC1	0.	0.	0.	0.	0.	0.
LTC2	0.	0.	0.	0.	2.	0.
LTC3	0.	0.	0.	0.	0.	0.
LTC4	0.	6.	3.	0.	0.	0.
LTC5	9.	7.	3.	0.	0.	0.
LTC6	1.	2.	1.	0.	1.	1.
LTC7	7.	0.	1.	1.	1.	2.
LTC8	0.	4.	1.	0.	0.	0.

Table 129

SUBJECT	STAGE 4: STUDY 5 SUPPRESSION RATIO, 45 SEC TRIAL					
	1	2	3	4	5	6
TLE1	.00	.00	.00	.00	.00	.00
TLE2	.67	.56	.47	.19	.00	.00
TLE3	.50	.42	.10	.00	.05	.00
TLE4	.03	.06	.00	.00	.00	.00
TLE5	.57	.55	.16	.00	.00	.00
TLE6	.34	.22	.16	.05	.05	.09
TLE7	.10	.00	.00	.00	.00	.00
TLE8	.60	.30	.50	.38	.05	.00
TLC1	.23	.00	.00	.07	.00	.00
TLC2	.19	.00	.00	.00	.12	.00
TLC3	.25	.00	.00	.00	.01	.00
TLC4	.28	.05	.00	.00	.11	.00
TLC5	.03	.00	.00	.03	.06	.00
TLC6	.30	.27	.00	.02	.04	.03
TLC7	.43	.00	.00	.00	.00	.00
TLC8	.00	.00	.00	.00	.00	.00

Table 130

SUBJECT	STAGE 4: STUDY 5 DURING CS RATE FOR 45 SEC TRIAL					
	1	2	3	4	5	6
TLE1	0.	0.	0.	0.	0.	0.
TLE2	10.	6.	4.	2.	0.	0.
TLE3	17.	16.	2.	0.	1.	0.
TLE4	1.	2.	0.	0.	0.	0.
TLE5	25.	11.	2.	0.	0.	0.
TLE6	14.	6.	5.	1.	1.	1.
TLE7	1.	0.	0.	0.	0.	0.
TLE8	9.	5.	9.	6.	1.	0.
TLC1	4.	0.	0.	1.	0.	0.
TLC2	6.	0.	0.	0.	3.	0.
TLC3	20.	0.	0.	0.	1.	0.
TLC4	4.	1.	0.	0.	2.	0.
TLC5	1.	0.	0.	1.	4.	0.
TLC6	14.	11.	0.	1.	2.	1.
TLC7	19.	0.	0.	0.	0.	0.
TLC8	0.	0.	0.	0.	0.	0.

Table 131

SUBJECT	STAGE 4: STUDY 5 SUPPRESSION RATIO					
	TRIAL					
	1	2	3	4	5	6
LTE1	.00	.00	.00	.00	.00	.04
LTE2	.00	.00	.00	.00	.00	.18
LTE3	.00	.00	.00	.00	.00	.10
LTE4	.00	.00	.00	.04	.47	.00
LTE5	.00	.00	.00	.00	.00	.16
LTE6	.24	.21	.18	.19	.26	.11
LTE7	.16	.14	.00	.08	.15	.07
LTE8	.11	.00	.00	.07	.00	.15
LTC1	.00	.00	.00	.00	.03	.10
LTC2	.00	.57	.50	.48	.52	.29
LTC3	.00	.00	.00	.00	.27	.11
LTC4	.00	.00	.03	.18	.35	.14
LTC5	.00	.00	.05	.05	.03	.01
LTC6	.02	.05	.04	.10	.17	.29
LTC7	.13	.12	.09	.06	.16	.28
LTC8	.00	.00	.06	.08	.14	.23

Table 132

SUBJECT	STAGE 4: STUDY 5 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
LTE1	83.	87.	96.	96.	108.	76.
LTE2	58.	57.	61.	56.	47.	70.
LTE3	102.	121.	140.	130.	173.	140.
LTE4	74.	80.	65.	79.	78.	48.
LTE5	64.	58.	47.	48.	46.	49.
LTE6	65.	55.	81.	78.	121.	121.
LTE7	31.	38.	35.	33.	34.	41.
LTE8	48.	60.	48.	41.	48.	66.
LTC1	7.	45.	73.	38.	116.	103.
LTC2	8.	9.	18.	13.	14.	29.
LTC3	96.	88.	59.	76.	89.	93.
LTC4	60.	96.	102.	97.	126.	115.
LTC5	222.	211.	162.	171.	175.	228.
LTC6	148.	190.	216.	186.	244.	227.
LTC7	40.	69.	59.	51.	62.	62.
LTC8	79.	118.	144.	131.	109.	130.

Table 133

SUBJECT	STAGE 4: STUDY 5 DURING CS RATE FOR 1 MIN TRIAL					
	1	2	3	4	5	6
LTE1	0.	0.	0.	0.	0.	1.
LTE2	0.	0.	0.	0.	0.	5.
LTE3	0.	0.	0.	0.	0.	5.
LTE4	0.	0.	0.	1.	23.	0.
LTE5	0.	0.	0.	0.	0.	3.
LTE6	7.	5.	6.	6.	14.	5.
LTE7	2.	2.	0.	1.	2.	1.
LTE8	2.	0.	0.	1.	0.	4.
LTC1	0.	0.	0.	0.	1.	4.
LTC2	0.	4.	6.	4.	5.	4.
LTC3	0.	0.	0.	0.	11.	4.
LTC4	0.	0.	1.	7.	23.	6.
LTC5	0.	0.	3.	3.	2.	1.
LTC6	1.	3.	3.	7.	17.	31.
LTC7	2.	3.	2.	1.	4.	8.
LTC8	0.	0.	3.	4.	6.	13.

Table 134

SUBJECT	STAGE 3: STUDY 5 SUPPRESSION RATIO TRIAL					
	1	2	3	4	5	6
TLE1	.00	.00	.00	.00	.00	.00
TLE2	.08	.19	.00	.44	.54	.64
TLE3	.04	.06	.00	.10	.45	.24
TLE4	.10	.07	.11	.20	.28	.18
TLE5	.00	.00	.07	.15	.37	.45
TLE6	.00	.00	.00	.04	.11	.21
TLE7	.00	.00	.05	.00	.00	.09
TLE8	.00	.00	.00	.00	.35	.36
TLC1	.00	.00	.00	.00	.00	.24
TLC2	.00	.00	.00	.04	.17	.00
TLC3	.00	.00	.15	.28	.47	.37
TLC4	.15	.00	.31	.43	.40	.56
TLC5	.02	.04	.20	.44	.20	.36
TLC6	.06	.35	.22	.37	.37	.43
TLC7	.00	.00	.00	.00	.00	.00
TLC8	.00	.00	.00	.52	.14	.16

Table 135

SUBJECT	STAGE 3: STUDY 5 PRE-CS RATE FOR 3 MIN TRIAL					
	1	2	3	4	5	6
TLE1	71.	72.	64.	62.	42.	76.
TLE2	33.	25.	68.	27.	26.	17.
TLE3	67.	49.	57.	77.	66.	68.
TLE4	79.	80.	145.	108.	142.	120.
TLE5	34.	44.	42.	85.	51.	47.
TLE6	73.	74.	91.	66.	96.	58.
TLE7	33.	33.	55.	45.	49.	31.
TLE8	6.	36.	30.	35.	33.	42.
TLC1	39.	30.	44.	31.	51.	29.
TLC2	70.	71.	60.	71.	57.	96.
TLC3	79.	76.	176.	126.	87.	173.
TLC4	50.	50.	60.	44.	53.	45.
TLC5	144.	82.	82.	34.	131.	158.
TLC6	96.	93.	108.	137.	122.	113.
TLC7	45.	53.	99.	71.	83.	90.
TLC8	14.	7.	24.	11.	18.	16.

Table 136

SUBJECT	STAGE 3: STUDY 5 DURING CS RATE FOR 1 MIN					
	TRIAL					
	1	2	3	4	5	6
TLE1	0.	0.	0.	0.	0.	0.
TLE2	1.	2.	0.	7.	10.	10.
TLE3	1.	1.	0.	3.	18.	7.
TLE4	3.	2.	6.	9.	18.	9.
TLE5	0.	0.	1.	5.	10.	13.
TLE6	0.	0.	0.	1.	4.	5.
TLE7	0.	0.	1.	0.	0.	1.
TLE8	0.	0.	0.	0.	6.	8.
TLC1	0.	0.	0.	0.	0.	3.
TLC2	0.	0.	0.	1.	4.	0.
TLC3	0.	0.	10.	16.	26.	34.
TLC4	3.	0.	9.	11.	12.	19.
TLC5	1.	1.	7.	9.	11.	30.
TLC6	2.	17.	10.	27.	24.	28.
TLC7	0.	0.	0.	0.	0.	0.
TLC8	0.	0.	0.	4.	1.	1.

