

Serum Chemistry Parameters for the CRL:CD@BR Rat

February 1993

Normal or "expected" values for hematology and serum chemistry are frequently sought by those wishing to compare values assayed in their laboratory or obtained in their research with values commonly obtained in other laboratories. Unfortunately, the conditions of the assay procedure as well as the conditions and even the specifications of the animals assayed are seldom the same between laboratories and, in the case of outbred stocks, may even vary over time due to small sampling sizes and genetic drift in populations. Even if these variables are taken into account, meaningful data on these parameters are still often hard to obtain for several reasons. Control group data published in the peer-reviewed literature, which are often used to compile listings of normal values, can be hard to locate. Even though such data are reported in the literature along with test group data, this information is not usually a topic of the paper and, therefore, is commonly not referenced by a keyword. For this reason, the information is often overlooked by computerized literature searches. In addition, published articles only rarely refer to methodology used to obtain the chemistry values reported. As the data presented here illustrate, different analytical methods and equipment can result in considerably different values for the same parameter. Moreover, other environmental and technique related variables, such as the method used to restrain the animals for blood collection as well as the anatomic site from which the blood was drawn (e.g., tail vein, orbital sinus, heart puncture, abdominal aorta), can result in different values for some of these parameters (1-8). For these reasons, care should be taken in using these data which cannot substitute for historical data collected within a single institution.

The information presented in this monograph was obtained from toxicology studies designed to support product registration. All studies were performed under Good Laboratory Practice regulations of either the US Food and Drug Administration or the Environmental Protection Agency. All animals were housed one per cage and fed Purina Rodent Chow except for study groups HV and HY. Animals in study group HV were housed 5/cage and fed a diet identified in the report as certified rodent diet #1324; animals in study group HY were housed 5/cage and fed a rodent diet produced by K & K Greef. All groups of rats were either untreated or vehicle controls in these studies. The actual health status of the animals at the time of blood sampling was not indicated in any of the study reports.

The data are separated by sex and presented in tables by individual study group and time on study. Where necessary, results were converted to match those units more commonly used and presented here. Due to the variation in methodology used to obtain these values, and the intrinsic variation among the different studies, it would be inappropriate and misleading to combine individual group means into overall means or medians.

[Table 1](#) presents codes relating to the analytical methods or instrumentation used to obtain the means for each parameter measured in each study group. These codes are identified in [Table 2](#). Information is arranged alphabetically by study code for easier access. In study group IM, methodology was changed during the course of a study. Samples from the first intervals (26 weeks) were analyzed by the methods listed in the first column in Table 1 for study IM, and all other intervals (52, 78 and 104 weeks) were analyzed by the methods in the second column. Table 1 also reports the start date (date of first dosing), the vehicle administered to the control group (if any), and the route of test article, or vehicle, administration for each group of rats. The site of blood draw is not given as it was not available in the final reports from which these data were extracted. To determine the age of the rats, add approximately

6 weeks to the study interval since, in general, dosing started when the rats were about 6 weeks of age.

[Table 3](#) (males) and [Table 4](#) (females) present the mean values reported for each parameter by study group. In many cases, a single study group had blood analyses performed at several different intervals, all of which are reported here under the same study identification code. Data in these tables are presented by increasing study interval, and consequently by increasing animal age. Study start dates (date of first dose) are repeated here for your convenience, and the number of animals comprising the means is also reported.

The graphs display the information in the tables, showing the range of the means obtained from all of the different methodologies.

ACKNOWLEDGMENTS:

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REFERENCES:

1. Dameron, G.W., K.W. Weingand, J.M. Duderstadt, et al., Effect of Bleeding Site on Clinical Laboratory Testing of Rats: Orbital Venous Plexus Versus Posterior Vena Cava, *Lab. Anim. Sci.*, **42**(3): 299-301 (1992)
 2. Dohler, D.-D., A. von zur Muhlen, K. Gartner and U. Dohler, Effect of Various Blood Sampling Techniques on Serum Levels of Pituitary and Thyroid Hormones in the Rat, *J. Endocr.*, **74**: 341-342 (1977)
 3. Friedel, R., I. Trautschold, K. Gartner, M. Helle-Feldmann and D. Gaudssuhn, Einfluss Verschiedener Methoden zur Blutgewinnung auf Enzym-Aktivitäten im Serum Kleiner Laboratoriumstiere, *Z. Klin. Chem. Klin. Biochem.*, **13**: 499-505 (1975)
 4. Neptun, D.A., C.N. Smith and R.D. Irons, Effect of Sampling Site and Collection Method on Variations in Baseline Clinical Pathology Parameters in Fischer-344 Rats. I. Clinical Chemistry, *Fund. Appl. Tox.*, **5**: 1180-1185 (1985)
 5. Smith, C.N., D.A. Neptun, and R.D. Irons, Effect of Sampling Site and Collection Method on Variations in Baseline Clinical Pathology Parameters in Fischer-344 Rats. II. Clinical Hematology, *Fund. Appl. Tox.*, **7**: 658-663 (1986)
 6. Suber, R.L., and R.L. Kodell, The Effect of Three Phlebotomy Techniques on Hematologic and Clinical Chemical Evaluation in Sprague Dawley Rats, *Vet. Clin. Path.*, **14**: 23-30 (1985)
 7. Upton, P.D. and D.J. Morgan, The Effect of Sampling Technique on Some Blood Parameters in the Rat, *Laboratory Animals*, **9**: 85-91 (1975)
 8. Weingand, K.W., L.W. Odioso, G.W. Dameron, et al., Hematology Analyzer Comparison: Ortho ELT-8/ds vs Baker 9000 for Healthy Dogs, Mice and Rats, *Vet. Clin. Path.*, **21**: 10-14 (1992)
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FIGURE 1a
SERUM ALBUMIN
MALE CD® RATS

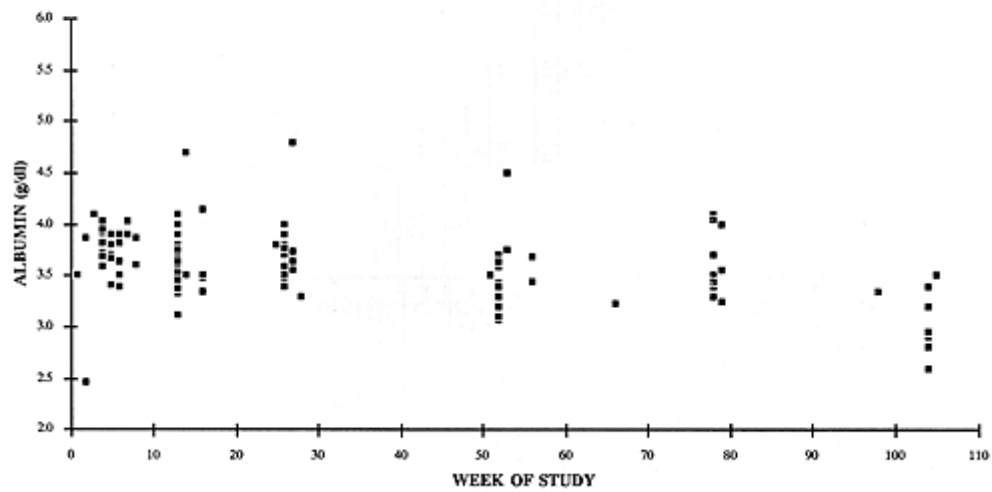


FIGURE 1b
SERUM ALBUMIN
FEMALE CD® RATS

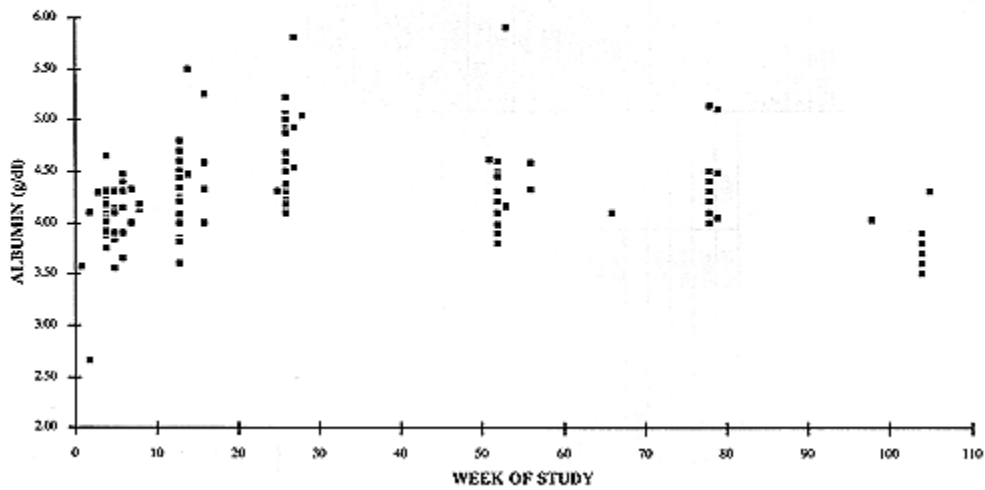


FIGURE 2a
ALKALINE PHOSPHATASE
MALE CD® RATS

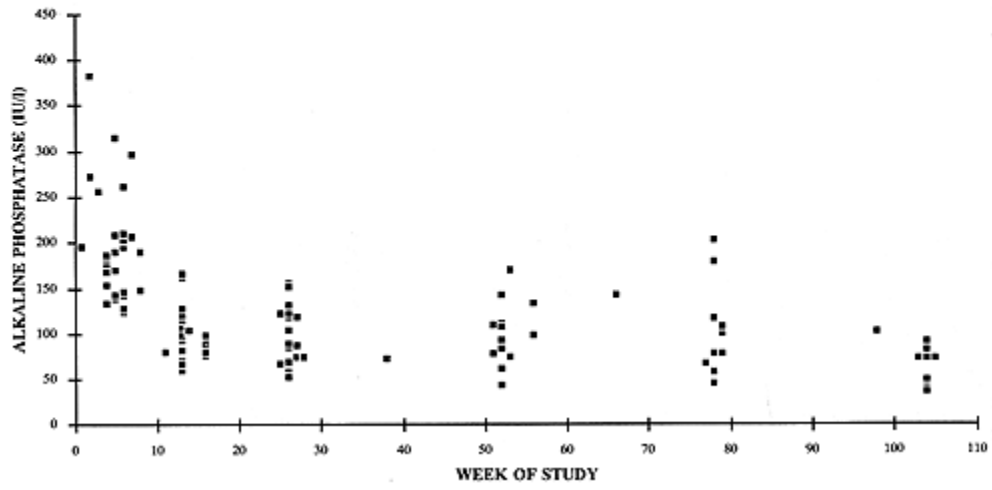


FIGURE 2b
ALKALINE PHOSPHATASE
FEMALE CD® RATS

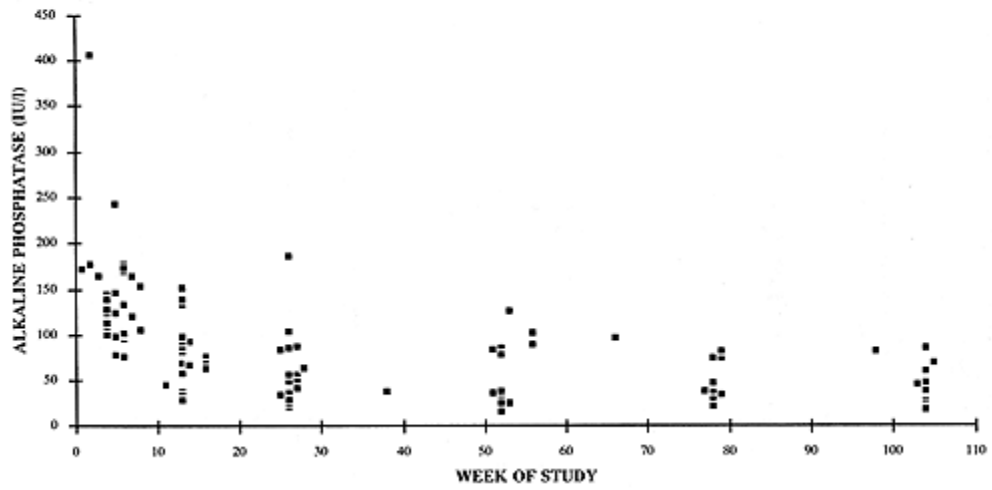


FIGURE 3a
ALANINE AMINOTRANSFERASE
MALE CD® RATS

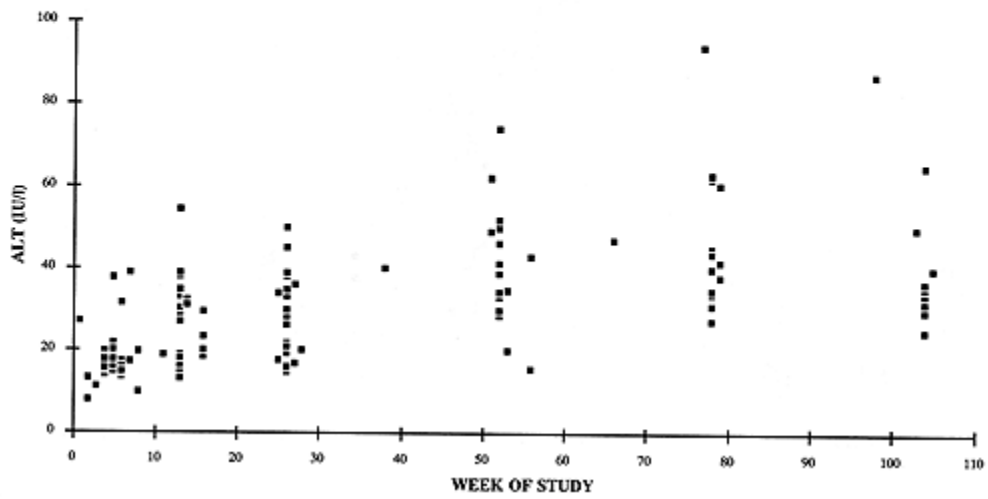


FIGURE 3b
ALANINE AMINOTRANSFERASE
FEMALE CD® RATS

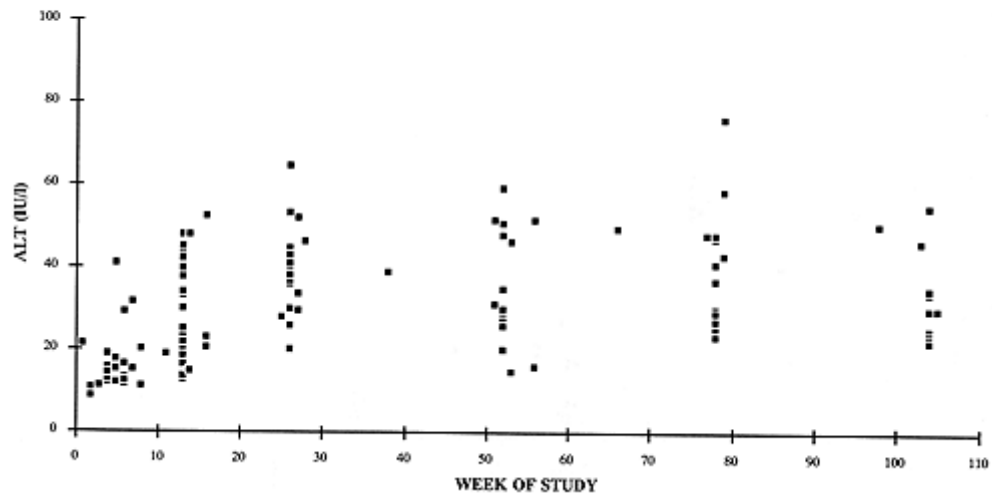


FIGURE 4a
ASPARTATE AMINOTRANSFERASE
MALE CD® RATS

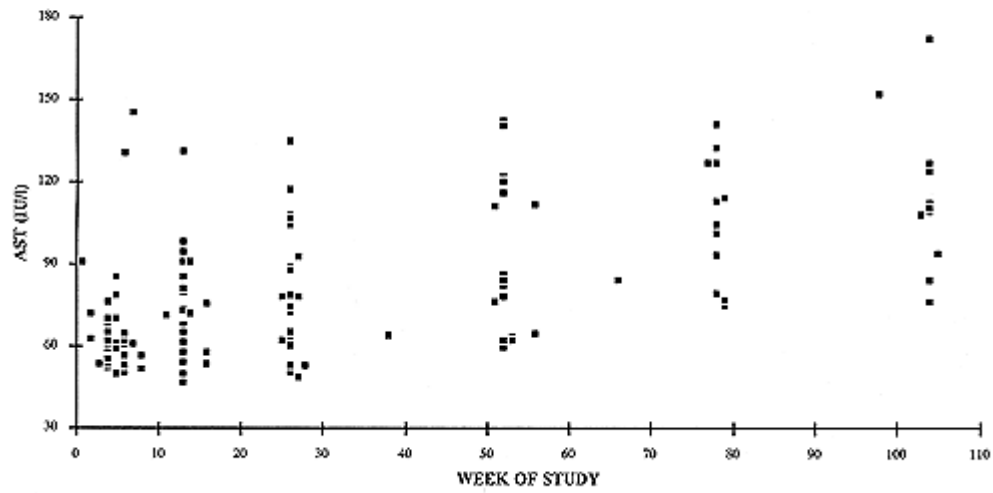


FIGURE 4b
ASPARTATE AMINOTRANSFERASE
FEMALE CD® RATS

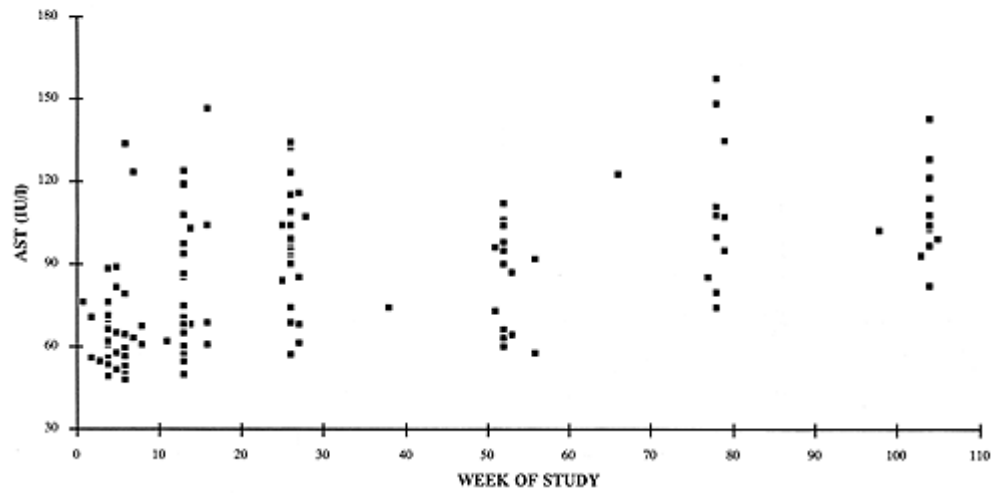


FIGURE 5a
TOTAL BILIRUBIN
MALE CD⁰ RATS

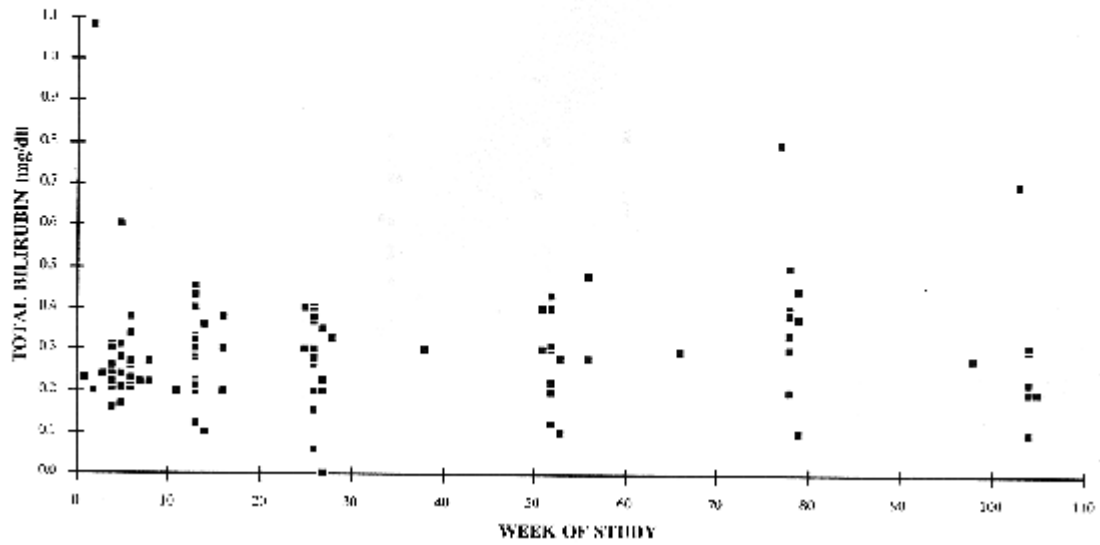


FIGURE 5b
TOTAL BILIRUBIN
FEMALE CD⁰ RATS

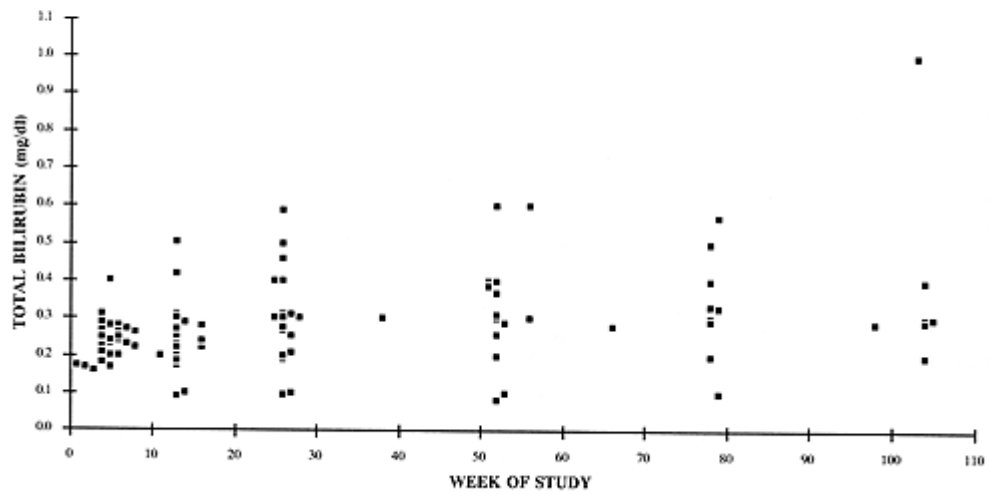


FIGURE 6a
CALCIUM
MALE CD® RATS

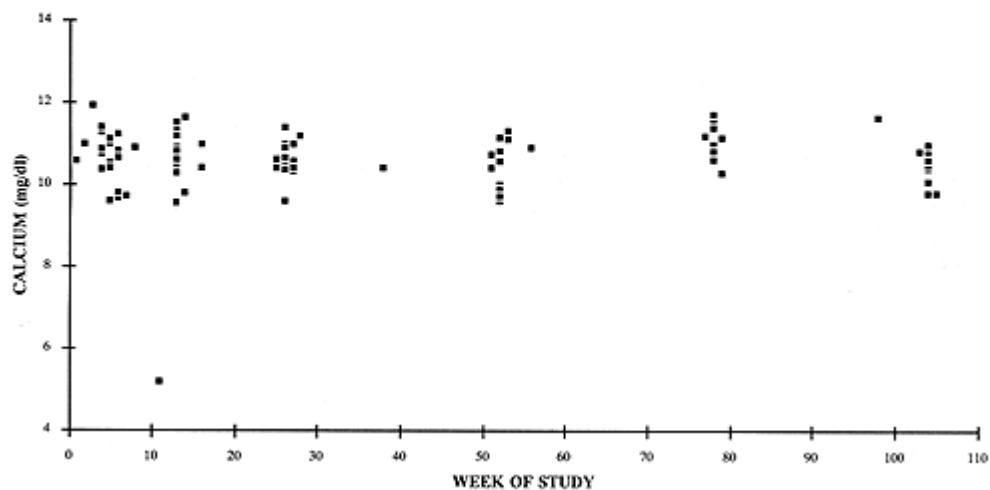


FIGURE 6b
CALCIUM
FEMALE CD® RATS

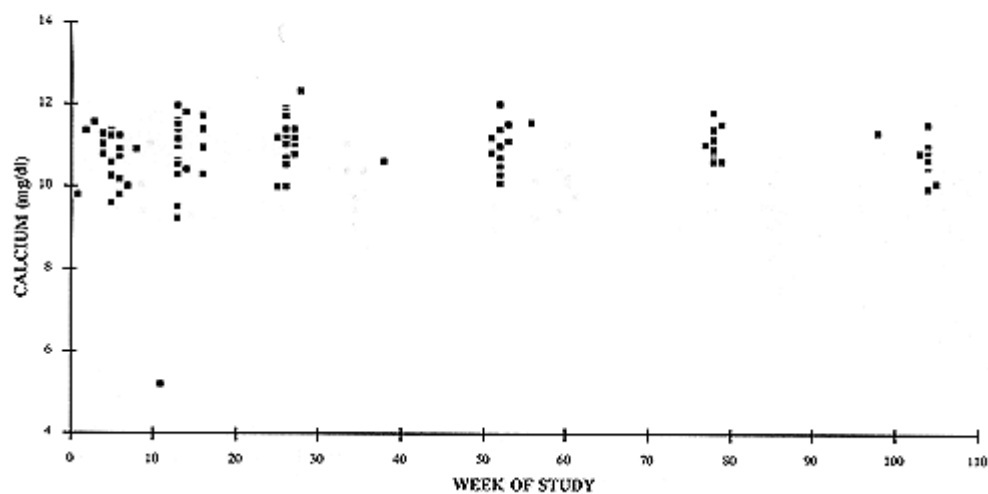


FIGURE 7a
CHLORIDE
MALE CD® RATS

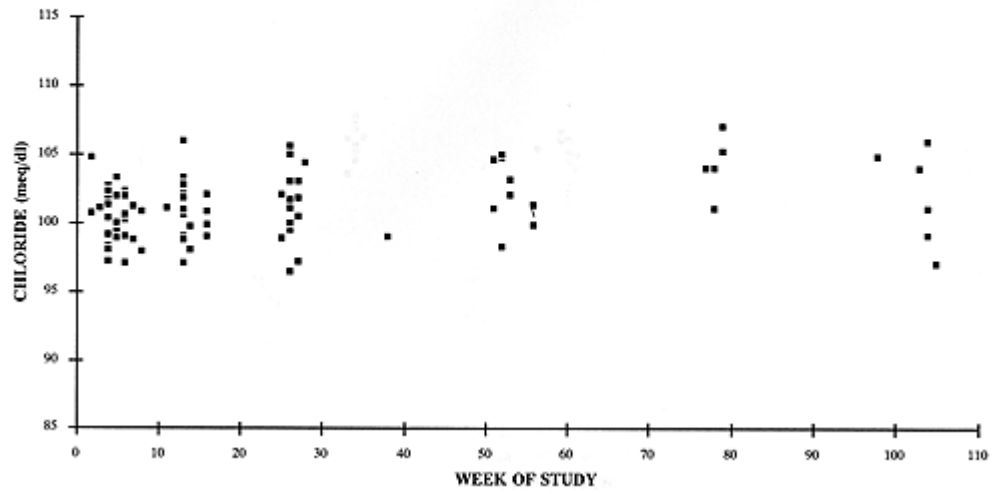


FIGURE 7b
CHLORIDE
FEMALE CD® RATS

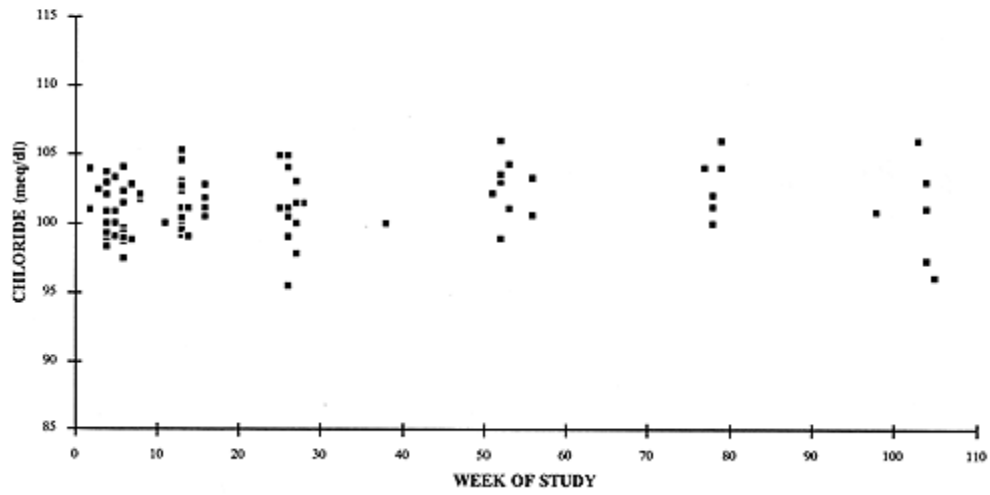


FIGURE 8a
CHOLESTEROL
MALE CD® RATS

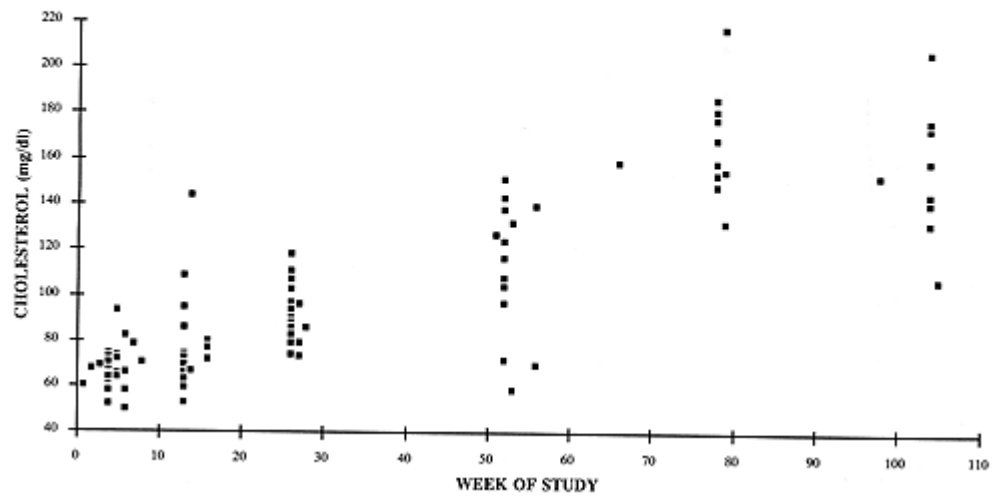


FIGURE 8b
CHOLESTEROL
FEMALE CD® RATS

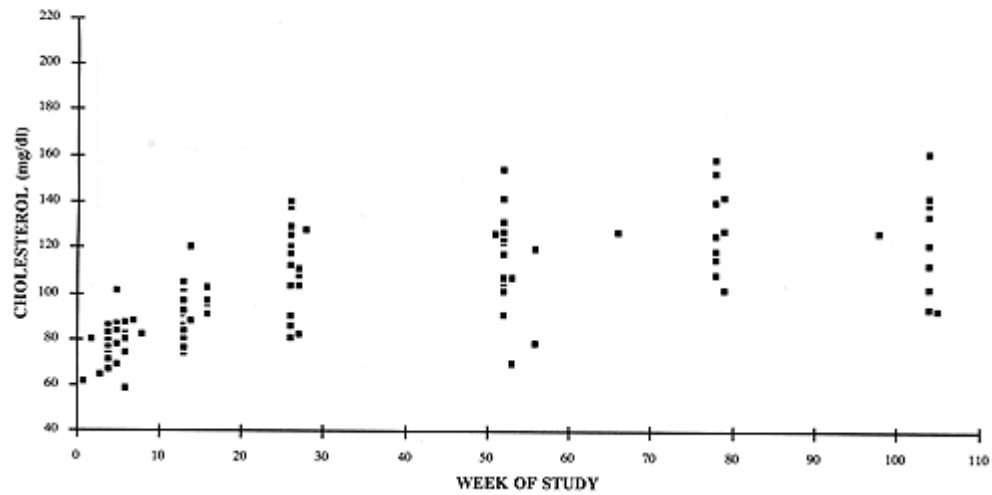


FIGURE 9a
CREATININE
MALE CD® RATS

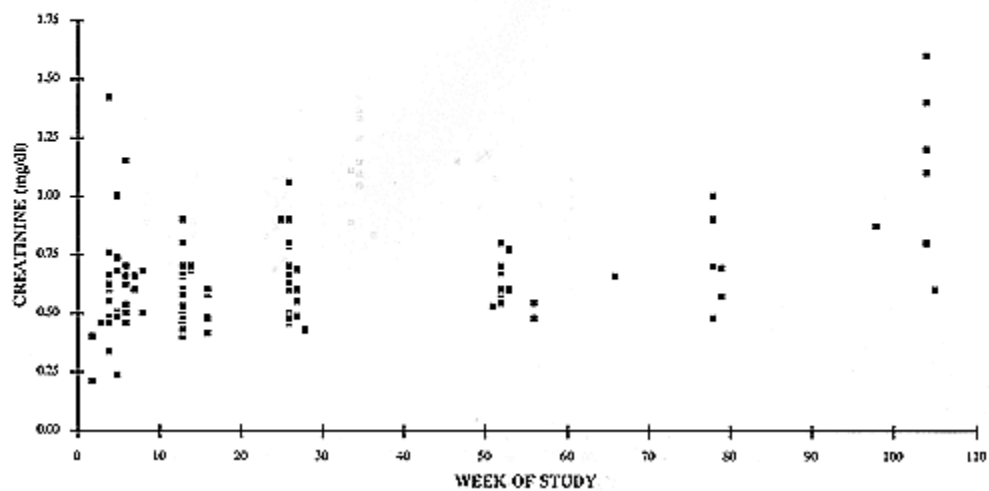


FIGURE 9b
CREATININE
FEMALE CD® RATS

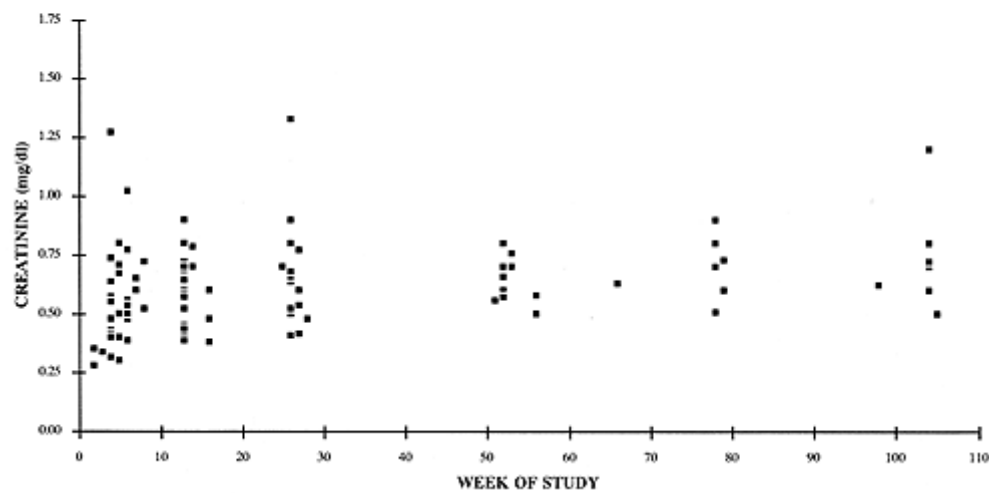


FIGURE 10a
GAMMA GLUTAMYL TRANSPEPTIDASE
MALE CD® RATS

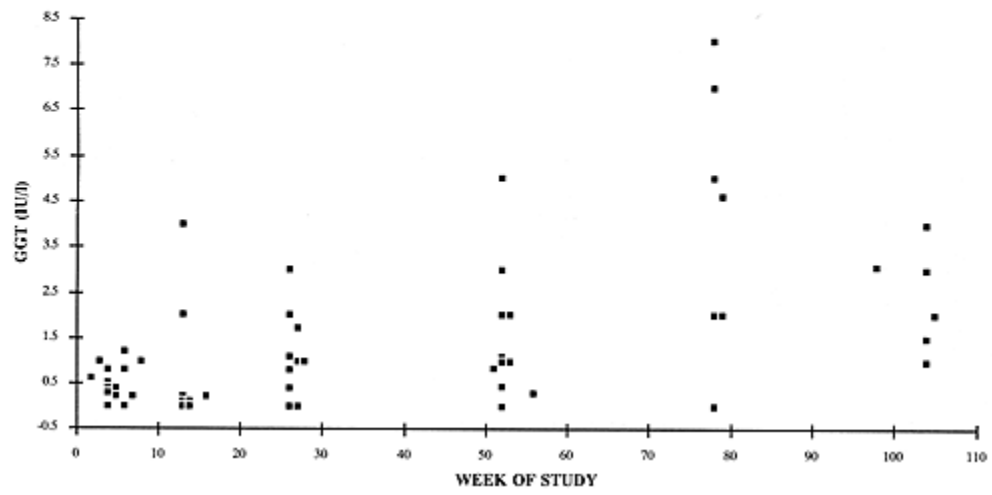


FIGURE 10b
GAMMA GLUTAMYL TRANSPEPTIDASE
FEMALE CD® RATS

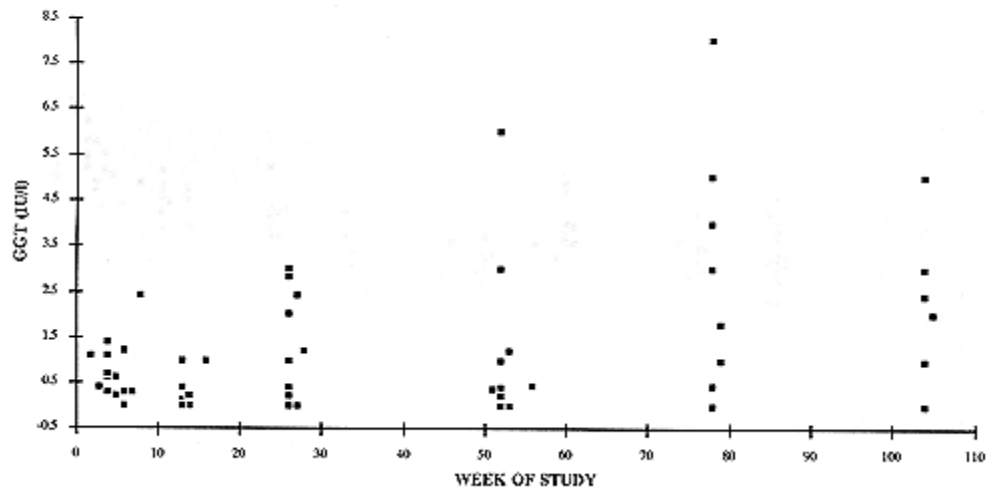


FIGURE 11a
GLUCOSE
MALE CD® RATS

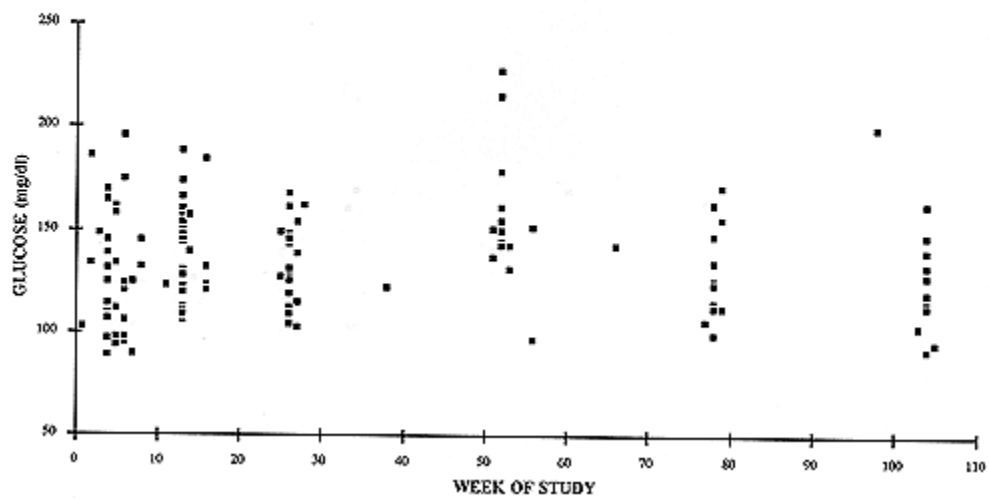


FIGURE 11b
GLUCOSE
FEMALE CD® RATS

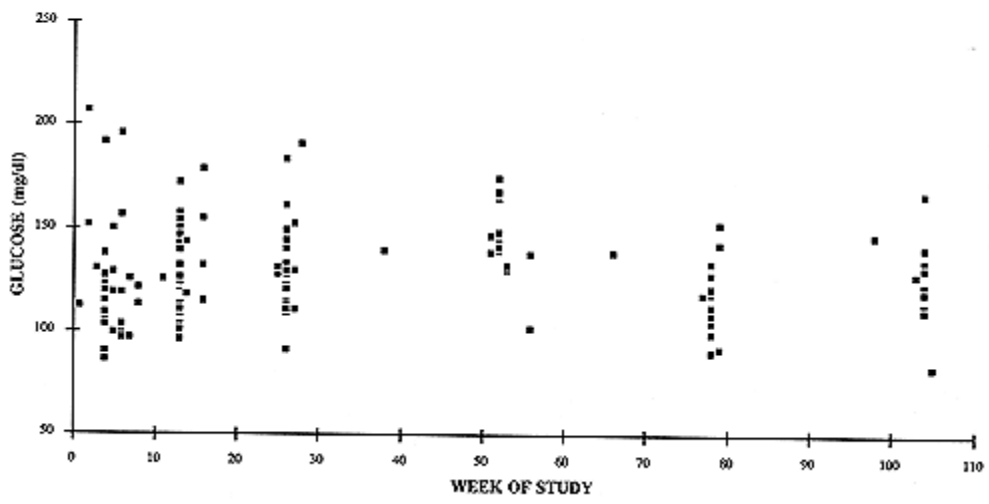


FIGURE 12a
PHOSPHORUS
MALE CD® RATS

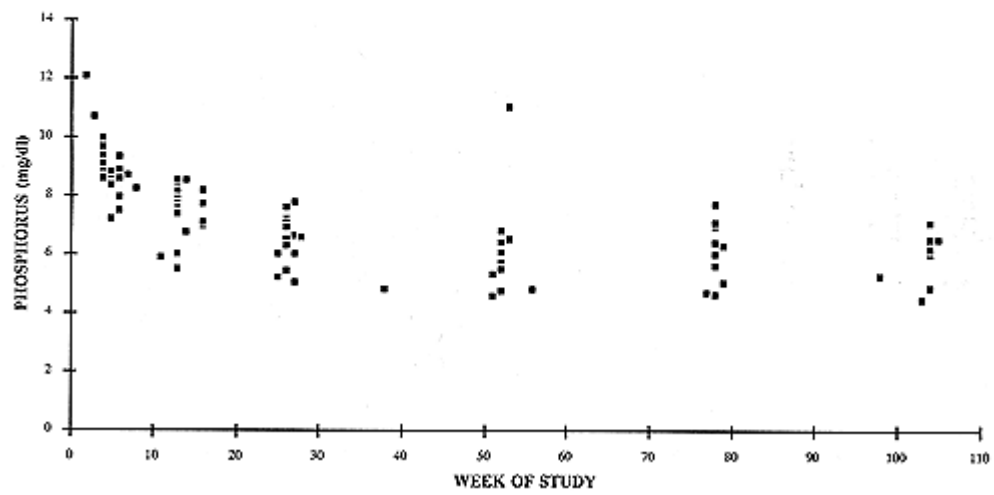


FIGURE 12b
PHOSPHORUS
FEMALE CD® RATS

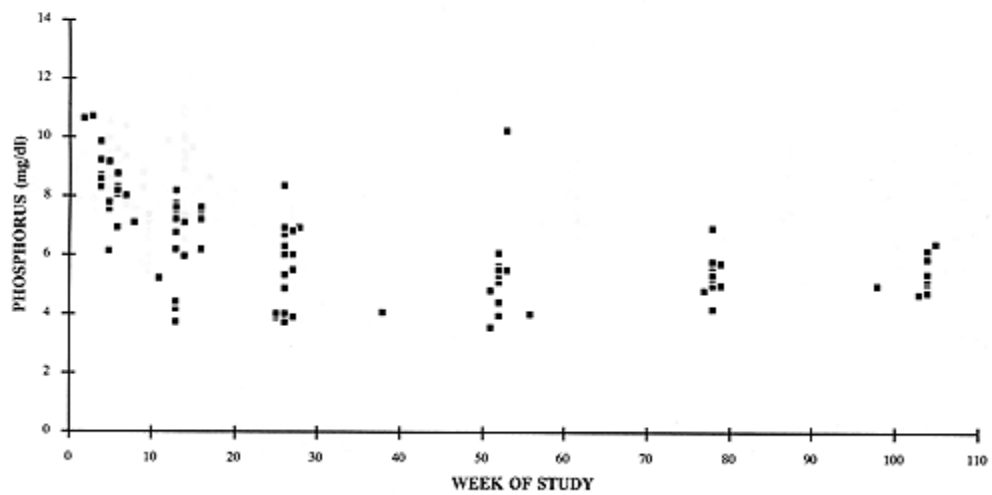


FIGURE 13a
TOTAL PROTEIN
MALE CD® RATS

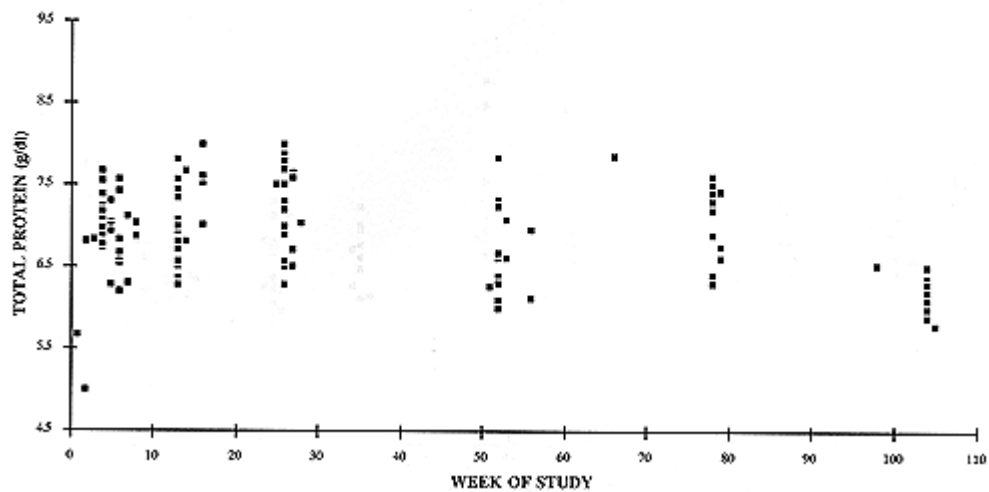


FIGURE 13b
TOTAL PROTEIN
FEMALE CD® RATS

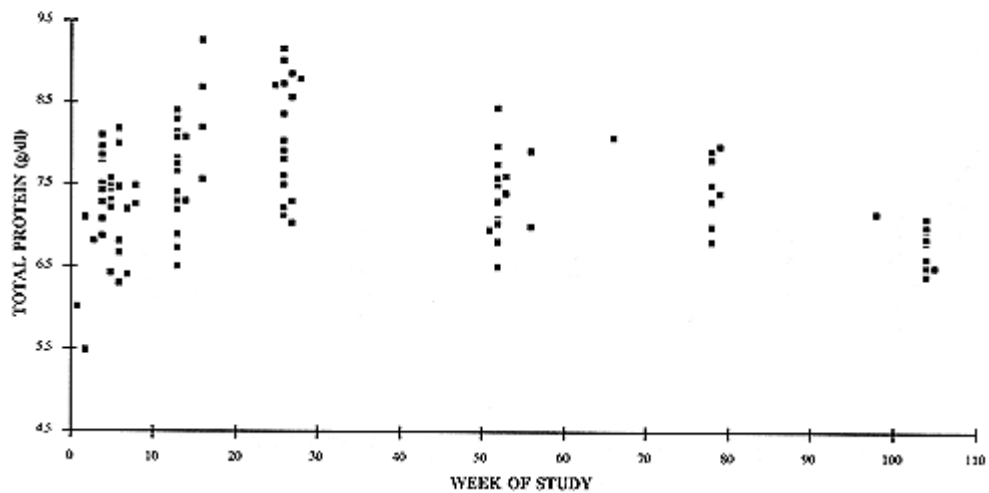


FIGURE 14a
SERUM GLOBULIN
MALE CD® RATS

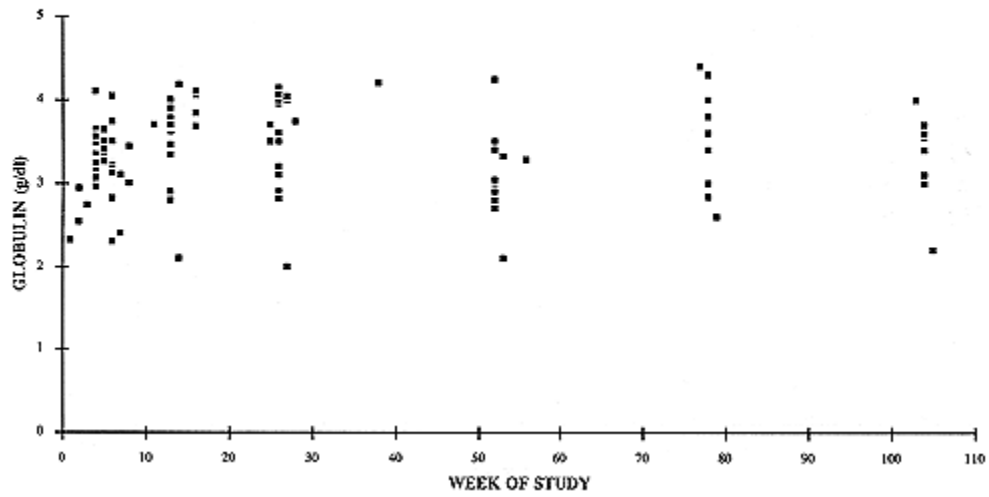


FIGURE 14b
SERUM GLOBULIN
FEMALE CD® RATS

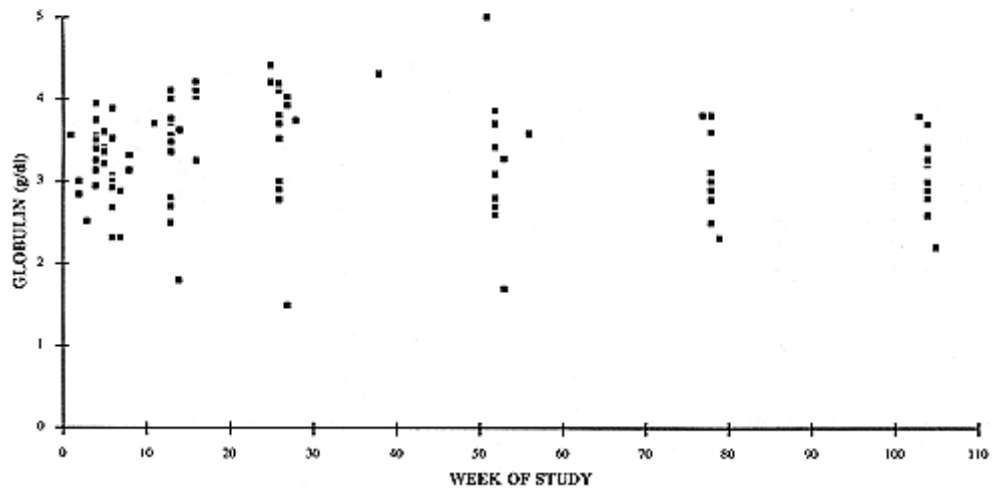


FIGURE 15a
POTASSIUM
MALE CD® RATS

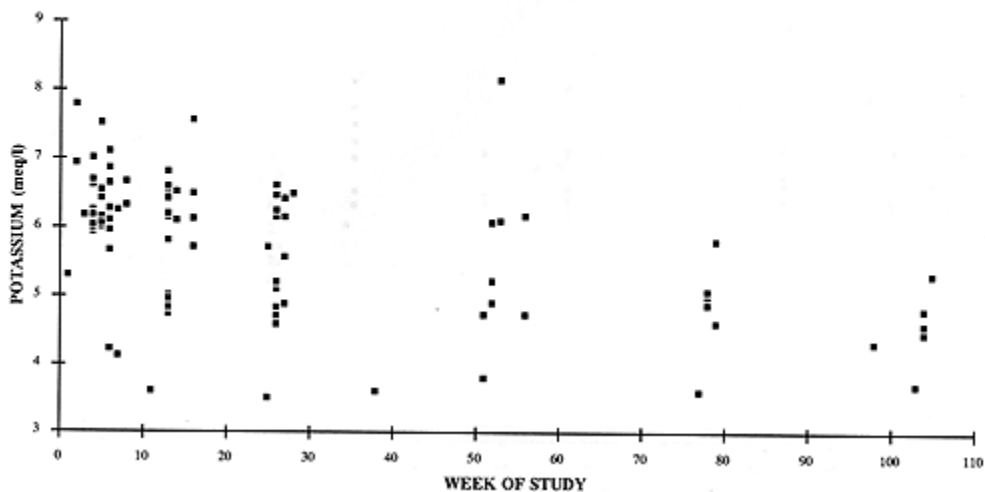


FIGURE 15b
POTASSIUM
FEMALE CD® RATS

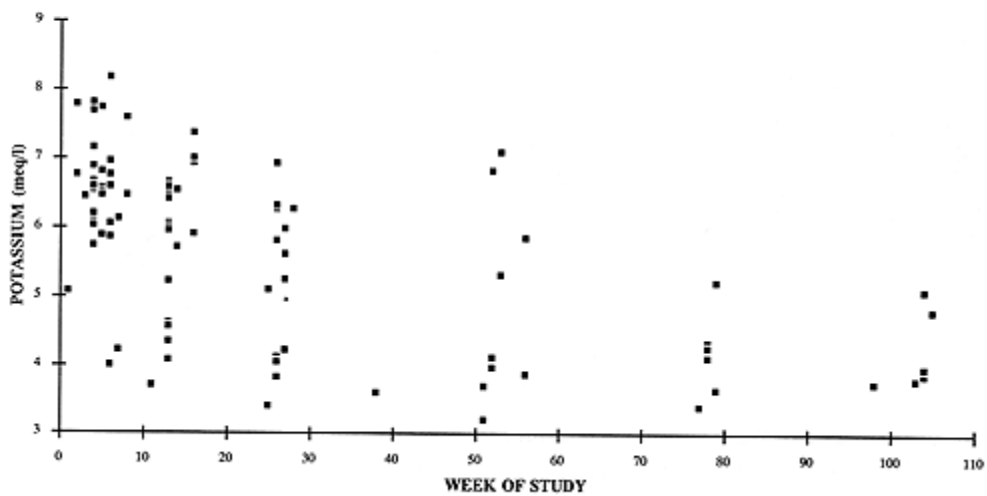


FIGURE 16a
SODIUM
MALE CD® RATS

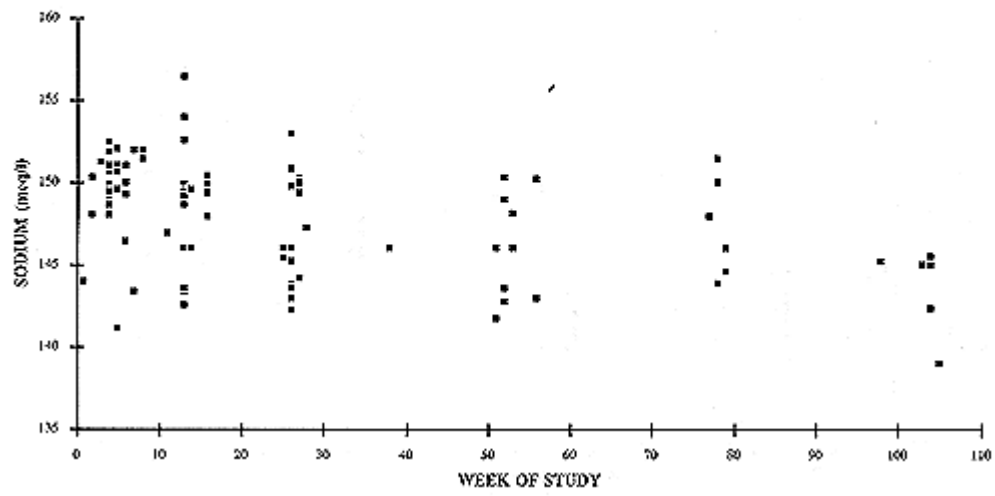


FIGURE 16b
SODIUM
FEMALE CD® RATS

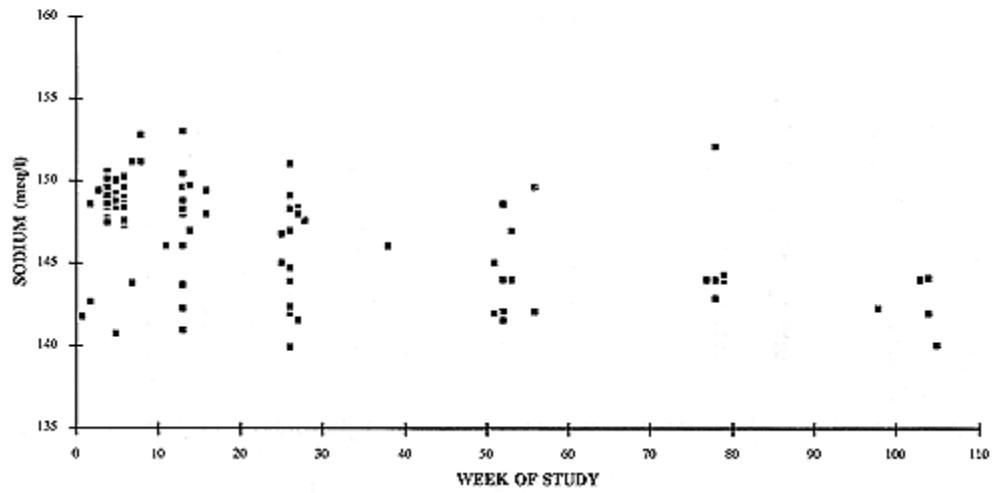


FIGURE 17a
TRIGLYCERIDES
MALE CD® RATS

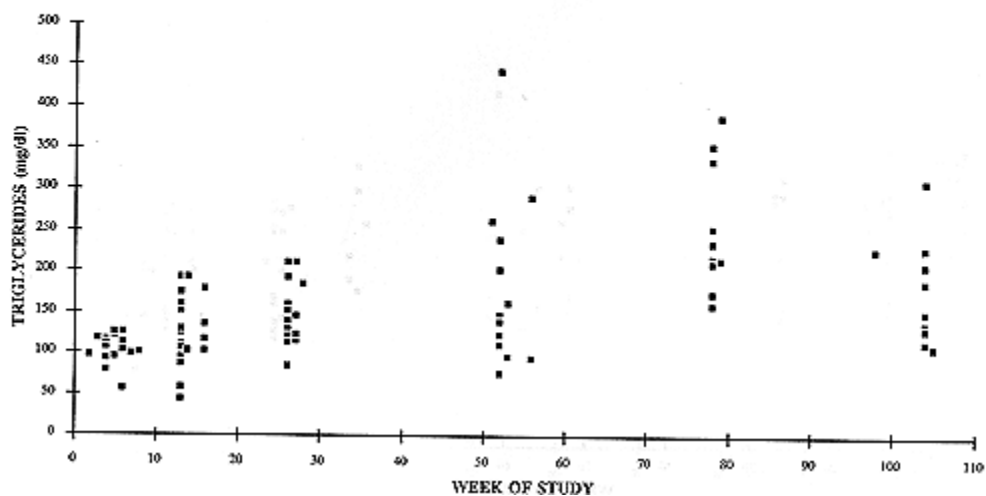


FIGURE 17b
TRIGLYCERIDES
FEMALE CD® RATS

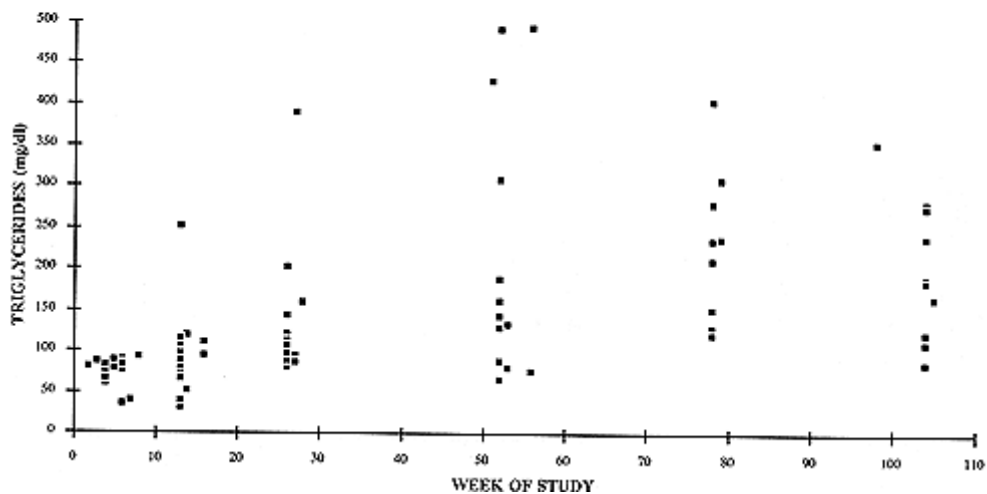


FIGURE 18a
BLOOD UREA NITROGEN
MALE CD® RATS

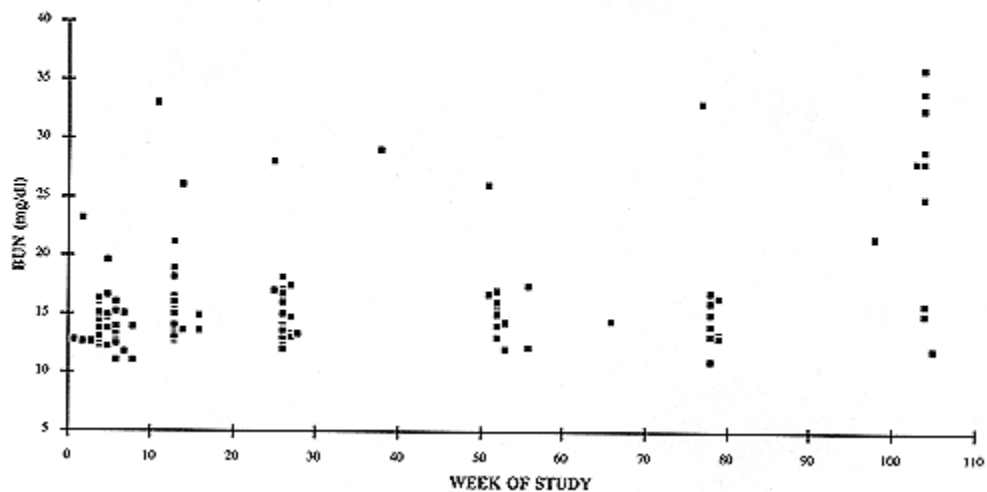
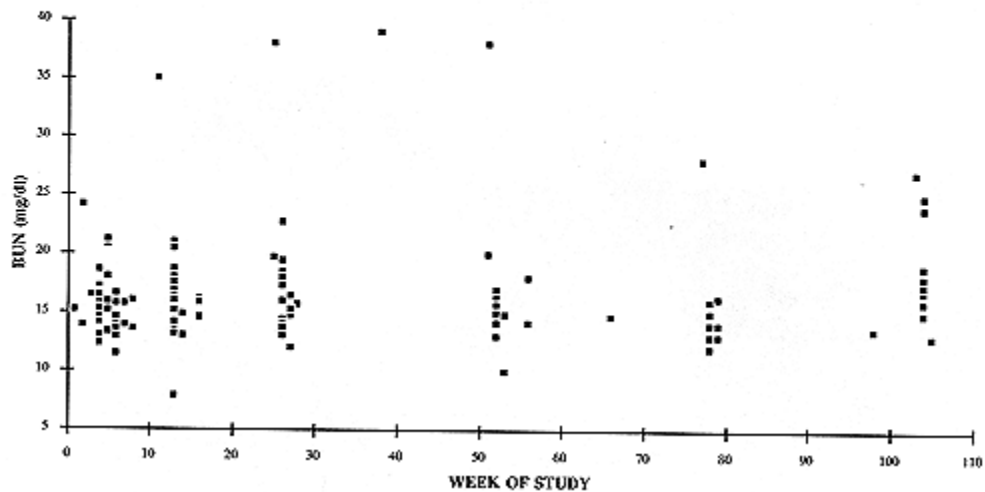


FIGURE 18b
BLOOD UREA NITROGEN
FEMALE CD® RATS



Serum Chemistry Parameters for the CRL:CD®BR Rat

February 1993

TABLE 1 METHODOLOGY						
STUDY CODE:	A	DW	EG	EH	EI	EO
STUDY START DATE:	5/27/82	3/8/85	11/12/86	7/27/88	2/6/85	10/8/86
VEHICLE:	NONE	0.2% HPMC	WATER	NONE	0.2% HPMC	SALINE
ROUTE OF ADMIN.:	DIET	GAVAGE	GAVAGE	DIET	GAVAGE	SC INJECT.
CHEMISTRY						
ALBUMIN	27	1	1	1	1	1
ALKALINE PHOSPHATASE	21	2	2	2	2	2
ALANINE AMINOTRANS- FERASE (ALT OR SGPT)	20	7	7	7	7	7
ASPARTATE AMINOTRANSFERASE (AST OR SGOT)	19	6	6	6	6	6
TOTAL BILIRUBIN	29	3	3	3	3	3
CALCIUM	32	16	16	16	16	16
CHLORIDE		11	11	11	11	11
CHOLESTEROL	24	12	12	12	12	12
CREATININE		4	4	4	4	4
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)			17	17		17
GLUCOSE	23	5	5	5	5	5
PHOSPHORUS		14	14	14	14	14
TOTAL PROTEIN	26	8	8	8	8	8
GLOBULIN *						
ALBUMIN/GLOBULIN*						
POTASSIUM	63	9	9	9	9	9
SODIUM	63	9	9	9	9	9
TRIGLYCERIDES		18	18	18	18	18
UREA NITROGEN (BUN)	22	10	10	10	10	10

**TABLE 1
METHODOLOGY**

STUDY CODE:	EZ	FA	FB	FC	FD	FE
STUDY START DATE:	5/15/90	9/29/89	10/12/89	9/7/89	3/1/90	9/22/88
VEHICLE:	MANNITOL CITRATE	0.2% HPMC	NONE	SALINE	0.2% HPMC	SALINE
ROUTE OF ADMIN.:	IV	GAVAGE	DIET	IV	GAVAGE	IV
CHEMISTRY						
ALBUMIN	34	1	1	1	1	1
ALKALINE PHOSPHATASE	35	2	2	2	2	2
ALANINE AMINOTRANS- FERASE (ALT OR SGPT)	7	7	7	7	7	7
ASPARTATE AMINOTRANSFERASE (AST OR SGOT)	6	6	6	6	6	6
TOTAL BILIRUBIN	3	3	3	3	3	3
CALCIUM	16	16	16	16	16	16
CHLORIDE	11	11	11	11	11	11
CHOLESTEROL	12	12	12	12	12	12
CREATININE	36	4	4	4	4	4
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	17	17	17	17	17	17
GLUCOSE	5	5	5	5	5	5
PHOSPHORUS	37	14	14	14	14	14
TOTAL PROTEIN	38	8	8	8	8	8
GLOBULIN *						
ALBUMIN/GLOBULIN*						
POTASSIUM	9	9	9	9	9	9
SODIUM	9	9	9	9	9	9
TRIGLYCERIDES	18	18	18	18	18	18
UREA NITROGEN (BUN)	10	10	10	10	10	10

**TABLE 1
METHODOLOGY**

STUDY CODE:	FG	GA	GB	GC	GZ	HA

STUDY START DATE:	4/5/88	2/25/82	11/6/84	7/10/84	10/8/85	2/12/88
VEHICLE:	0.2% HPMC	0.2% HPMC	0.2% HPMC	WATER	SALINE	5% DEXTROSE
ROUTE OF ADMIN.:	GAVAGE	GAVAGE	GAVAGE	GAVAGE	GAVAGE	IV
CHEMISTRY						
ALBUMIN	1	1	1	15	1	1
ALKALINE PHOSPHATASE	2	2	2	53	2	2
ALANINE AMINOTRANS- FERASE (ALT OR SGPT)	7	7	7	52	7	7
ASPARTATE AMINOTRANSFERASE (AST OR SGOT)	6	6	6	6	6	6
TOTAL BILIRUBIN	3	3	3	54	3	3
CALCIUM	16	13	16	16		16
CHLORIDE	11	11	11		11	11
CHOLESTEROL	12	12	12	12		12
CREATININE	4	4	4	4	4	4
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	17					17
GLUCOSE	5	5	5	5	5	5
PHOSPHORUS	14	14	14			14
TOTAL PROTEIN	8	8	8	8	8	8
GLOBULIN *						
ALBUMIN/GLOBULIN*						
POTASSIUM	9	9	9	71	9	9
SODIUM	9	9	9	71	9	9
TRIGLYCERIDES	18	18	18			18
UREA NITROGEN (BUN)	10	10	10	10	10	10

**TABLE 1
METHODOLOGY**

STUDY CODE:	HC	HD	HE	HF	HG	HH
STUDY START DATE:	8/17/87	2/9/83	11/22/85	11/12/81	9/16/86	7/30/85
VEHICLE:	0.2% HPMC	SALINE	5% DEXTROSE	NACL + TWEEN 20	0.2% HPMC	SALINE

ROUTE OF ADMIN.:	GAVAGE	IV	IV	SC INJECT.	GAVAGE	GAVAGE
CHEMISTRY						
ALBUMIN	1	1	1	1	1	1
ALKALINE PHOSPHATASE	2	2	2	2	2	2
ALANINE AMINOTRANSFERASE (ALT OR SGPT)	7	7	7	7	7	7
ASPARTATE AMINOTRANSFERASE (AST OR SGOT)	6	6	6	6	6	6
TOTAL BILIRUBIN	3	3	3	3	3	3
CALCIUM	16		16	13		
CHLORIDE	11	11	11	11	11	11
CHOLESTEROL	12	12	12			
CREATININE	4	4	4	4	4	4
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	17					
GLUCOSE	5	14	5	5	5	5
PHOSPHORUS	14		14	14		
TOTAL PROTEIN	8	8	8	8	8	8
GLOBULIN *						
ALBUMIN/GLOBULIN*						
POTASSIUM	9	9	9	9	9	9
SODIUM	9	9	9	9	9	9
TRIGLYCERIDES	18		18			
UREA NITROGEN (BUN)	10	10	10	10	10	10

**TABLE 1
METHODOLOGY**

STUDY CODE:	HI	HJ	HK	HL	HM	HN
STUDY START DATE:	8/22/84	4/19/83	12/13/88	11/14/83	4/4/86	7/13/83
VEHICLE:	0.2% HPMC	SALINE	0.2% HPMC	5% DEXTROSE	5% DEXTROSE	SALINE
ROUTE OF ADMIN.:	GAVAGE	IM INJECT.	GAVAGE	IV	IV	IV

CHEMISTRY						

ALBUMIN	1	1	39	1	1	1
ALKALINE PHOSPHATASE	2	2	39	2	2	2
ALANINE AMINOTRANSFERASE (ALT OR SGPT)	7	7	39	7	7	7
ASPARTATE AMINOTRANSFERASE (AST OR SGOT)	6	6	39	6	6	6
TOTAL BILIRUBIN	3	3	39	3	3	3
CALCIUM	16		39		16	
CHLORIDE	11	11	39	11	11	11
CHOLESTEROL	12		39	12	12	12
CREATININE	4	4	39	4	4	4
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)			28		17	
GLUCOSE	5	5	39	5	5	5
PHOSPHORUS	14		39		14	14
TOTAL PROTEIN	8	8	39	8	8	8
GLOBULIN *						
ALBUMIN/GLOBULIN*						
POTASSIUM	9	9	39	9	9	9
SODIUM	9	9	39	9	9	9
TRIGLYCERIDES	18		39		18	18
UREA NITROGEN (BUN)	10	10	39	10	10	10

**TABLE 1
METHODOLOGY**

STUDY CODE:	HO	HP	HQ	HR	HS	HT
STUDY START DATE:	11/19/85	11/11/86	12/15/82	4/16/82	2/4/82	8/26/87
VEHICLE:	5% DEXTROSE	0.2% HPMC	SALINE	SALINE	SALINE	0.2% HPMC
ROUTE OF ADMIN.:	IV	GAVAGE	IV	IM INJECT.	GAVAGE	GAVAGE
CHEMISTRY						
ALBUMIN	1	1	1	1	1	1
ALKALINE PHOSPHATASE	2	2	2	2	2	2

ALANINE AMINOTRANSFERASE (ALT OR SGPT)	7	7	7	7	7	7
ASPARTATE AMINOTRANSFERASE (AST OR SGOT)	6	6	6	6	6	6
TOTAL BILIRUBIN	3	3	3	3	3	3
CALCIUM		16				
CHLORIDE	11	11	11	11	11	11
CHOLESTEROL	12	12	12	12		
CREATININE	4	4	4	4	4	4
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)		17				
GLUCOSE	5	5	5	5	5	5
PHOSPHORUS		14				
TOTAL PROTEIN	8	8	8	8	8	8
GLOBULIN *						
ALBUMIN/GLOBULIN*						
POTASSIUM	9	9	9	9	9	9
SODIUM	9	9	9	9	9	9
TRIGLYCERIDES		18	18			
UREA NITROGEN (BUN)	10	10	10	10	10	10

**TABLE 1
METHODOLOGY**

STUDY CODE:	HU	HV	HW	HX	HY	HZ
STUDY START DATE:	5/28/87	12/15/87	10/17/84	5/31/83	11/16/83	7/27/87
VEHICLE:	0.2% HPMC	SALINE	NONE	NONE	NONE	FORMULATION
ROUTE OF ADMIN.:	GAVAGE	IV & IP	DIET	DIET	DIET	GAVAGE
CHEMISTRY						
ALBUMIN	1	51	15	15		1
ALKALINE PHOSPHATASE	2	44	53	53	58	2
ALANINE AMINOTRANSFERASE (ALT OR SGPT)	7	45	52	52	59	7
ASPARTATE AMINOTRANSFERASE	6	46	6	6	60	6

(AST OR SGOT)						
TOTAL BILIRUBIN	3	43	54	54	62	3
CALCIUM	16	50			65	16
CHLORIDE	11				64	11
CHOLESTEROL	12	48	12	12		12
CREATININE	4	41	4	4		4
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	17					17
GLUCOSE	5	47	5	5	57	5
PHOSPHORUS	14				66	14
TOTAL PROTEIN	8	42	8	8		8
GLOBULIN *						
ALBUMIN/GLOBULIN*						
POTASSIUM	9	49			63	9
SODIUM	9	49			63	9
TRIGLYCERIDES	18					18
UREA NITROGEN (BUN)	10	40	10	10	56	10

**TABLE 1
METHODOLOGY**

STUDY CODE:	IA	IB	IC	ID	IE	IF
STUDY START DATE:	1/6/87	4/20/83	2/17/83	8/31/83	3/3/87	12/9/89
VEHICLE:	5% GUM ARABIC	0.2% HPMC	SALINE	0.2% HPMC	0.2% HPMC	0.2% HPMC
ROUTE OF ADMIN.:	GAVAGE	GAVAGE	IM INJECT.	GAVAGE	GAVAGE	GAVAGE
CHEMISTRY						
ALBUMIN	27	1	1	1	1	1
ALKALINE PHOSPHATASE	21	2	2	2	2	2
ALANINE AMINOTRANS- FERASE (ALT OR SGPT)	20	7	7	7	7	7
ASPARTATE AMINOTRANSFERASE (AST OR SGOT)	19	6	6	6	6	6
TOTAL BILIRUBIN	29	3	3	3	3	3
CALCIUM	32			16	16	16
CHLORIDE	31	11	11	11	11	11

CHOLESTEROL	24	12		12	12	12
CREATININE	55	4	4	4	4	4
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)					17	17
GLUCOSE	23	5	5	5	5	5
PHOSPHORUS	33			14	14	14
TOTAL PROTEIN	26	8	8	8	8	8
GLOBULIN *						
ALBUMIN/GLOBULIN*						
POTASSIUM	30	9	9	9	9	9
SODIUM	30	9	9	9	9	9
TRIGLYCERIDES	25			18	18	18
UREA NITROGEN (BUN)	22	10	10	10	10	10

**TABLE 1
METHODOLOGY**

STUDY CODE:	IJ	IK	IL	IM	IM	IN
STUDY START DATE:	9/24/87	6/30/88	12/10/87	7/28/87	7/29/87	3/8/88
VEHICLE:	NONE	NONE	ACETONE	0.1% CORN OIL	0.1% CORN OIL	NONE
ROUTE OF ADMIN.:	DIET	DIET	DIET	DIET 26 WEEKS	DIET >26 WEEKS	DIET
CHEMISTRY						
ALBUMIN	27	27	69	27	70	70
ALKALINE PHOSPHATASE	21	21	69	21	70	70
ALANINE AMINOTRANS- FERASE (ALT OR SGPT)	20	20	69	20	70	70
ASPARTATE AMINOTRANSFERASE (AST OR SGOT)	19	19	69	19	70	70
TOTAL BILIRUBIN	29	29	69	29	70	70
CALCIUM	32	32	69	32	70	70
CHLORIDE	31	31	69			70
CHOLESTEROL	24	24	69	24	70	70
CREATININE	55	55	69	55	70	70
GAMMA GLUTAMYL	67	67	69	67	70	70

TRANSPEPTIDASE (GGT)						
GLUCOSE	23	23	69	23	70	70
PHOSPHORUS	33	33	69	33	70	70
TOTAL PROTEIN	26	26	69	26	70	70
GLOBULIN *						
ALBUMIN/GLOBULIN*						
POTASSIUM	68	68	69			70
SODIUM	68	68	69			70
TRIGLYCERIDES	25	25	69	25	70	70
UREA NITROGEN (BUN)	22	22	69	22	70	70

**TABLE 1
METHODOLOGY**

STUDY CODE:	IO	IP	IQ	IR	IS
STUDY START DATE:	2/15/85	12/3/84	5/19/86	11/12/84	4/10/84
VEHICLE:	NONE	NONE	NONE	NONE	NONE
ROUTE OF ADMIN.:	DIET	DIET	DIET	DIET	DIET
CHEMISTRY					
ALBUMIN	27	27	27	27	27
ALKALINE PHOSPHATASE	21	21	21	21	21
ALANINE AMINOTRANS- FERASE (ALT OR SGPT)	20	20	20	20	20
ASPARTATE AMINOTRANSFERASE (AST OR SGOT)	19	19	19	19	19
TOTAL BILIRUBIN	29	29	29	29	29
CALCIUM	32	32	32	32	32
CHLORIDE	31				
CHOLESTEROL	24	24	24	24	24
CREATININE	55	55	55	55	55
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	67	67	67	67	
GLUCOSE	23	23	23	23	23
PHOSPHORUS	33	33	33	33	33
TOTAL PROTEIN	26	26	26	26	26
GLOBULIN *					
ALBUMIN/GLOBULIN*					
POTASSIUM					

SODIUM					
TRIGLYCERIDES	25	25	25	25	25
UREA NITROGEN (BUN)	22	22	22	22	22

* = Calculated value

Serum Chemistry Parameters for the CRL:CD®BR Rat

February 1993

TABLE 2

METHODS DIRECTORY

SERUM CHEMISTRY

1. Based on the method of Rodkey, F.L., Clin. Chem. ACTA, 10, 643, 1964 as modified by Gindler, E.M. and Westgarp, J.O., Clin. Chem. ACTA, **19**: 647, 1973.
2. Abbott A-GENT® modification of the Method of Bessey, Lowry, Brock, J. Biol. Chem., **164**: 321 (1946).
3. Based on the method of Malloy and Evelyn, J. Biol. Chem. 119: 481, (1937), as modified by Rand and DiPasqua, Clin. Chem., **8**: 570 (1962).
4. Based on the method of Jaffe as modified by G. Moss, R. Bondav and D. Bezzell, Clin. Chem., Vol. 21, No. 10 (1975).
5. Glucose-UV, Abbott A-GENT® modification of the method of Richterich, R., and Drauwaldler, H., Schweizerische Medizinische Wochenschrift, **101**: 860 (1971).
6. Abbott A-GENT® GOT based on the method of Wroblewski, Karmen, and LaDue, J. Clin. Invest. **34**: 126 (1955) as modified by Henry, R.J., Chiamori, N., Golub, O.J., and Berkman, S., Am. J. of Clin. Pathol., **34**: 381 (1960).
7. Abbott A-GENT® GPT reagent based on the method of Wroblewski, F., and LaDue, J.S., Proc. Soc. Exp. Biol. and Med., **91**: 569 (1956) as modified by Henry, R.J., Chiamori, N., Golub, O.J., and Berkman, S., Am. J. of Clin. Pathol., **34**: 381 (1960).
8. Abbott A-GENT® total protein test based on the Biuret reaction as modified by Gornall, A.G., Bardawill, C.J., and David, M.M., J. Biol. Chem., **177**: 751 (1949).
9. Beckman Klina Flame Model #6521 (cat.#663296) flame photometer or Instrumentation Laboratories Model 343; instruments based on physical principle discussed in *Fundamentals of Clinical Chemistry* by Norbert W. Tietz, pp. 119-122 (1976), W.B. Saunders Co.
10. Abbott A-GENT® based on the method of Talke and Schubert, Klin. Wochenschr., **43**: 174 (1965).
11. Beckman Chloride/Carbon Dioxide Analyzer. Beckman adaptation of a method described by Sternberg, J.C., Buzza, E., and Lillig, J.: Ninth International Congress on Clinical Chemistry Procedures, "Simultaneous Electrochemical Determination of Total CO₂ and Chloride", 1975, Beckman Instruction Manual 015-083633B.
12. Abbott A-GENT® Cholesterol based on the method of Flegg, H.M., Ann. of Clin. Biochem., **10**: 79 (1973), as modified by Allain, C.C., Poon, L., Chan, S.G., Richmond, W., and Fu, P., Clin. Chem., **20**: 470 (1974).
13. Based on the method of Gindler, E.M., King, J.D., Am. J. Clin. Path., **58**: 376-382 (1972).
14. Based on the method of Fiske, C.H. and Subbarow, J. Biol. Chem., **66**: 375, 1925 as modified by Pierce Chem.
15. A-GENT® Albumin Test, Abbott Laboratories, Inc. (Abbott ABA-100).
16. Abbott A-GENT® (list #6064) a modification of the method of Connerty and Briggs. Am. J. Clin. Path., **45**: 290 (1966), adapted to the ABA-100®.

17. Abbott A-GENT® GGT (List #6096) based on the method of Szasz, G., Clin. Chem., **15**: 124 (1969) and adapted to the Abbott ABA-100®.
18. Abbott A-Gent® Triglyceride Test (List #6097) based on the method of Bucolo and David, Clin. Chem., **19**: 476 (1973) as modified by Sampson, E.J., Demers, L.M., and Krieg, A.F., Clin. Chem., **21**: 1983 (1975).
19. CentrifChem System®; Modified Karmen Technique.
20. CentrifChem System®; Modified Wroblewski and LaDue Technique.
21. CentrifChem System®; Modified Bessey-Lowry-Brock Technique.
22. CentrifChem System®; Modified Urease Technique.
23. CentrifChem System®; Hexokinase Method.
24. CentrifChem System®; Cholesterol Esterase-cholesterol Oxidase Method.
25. CentrifChem System®; Triglyceride-lipase Method.
26. CentrifChem System®; Biuret Technique.
27. CentrifChem System®; Bromocresol Green Method.
28. Cobas Fara.
29. CentrifChem System®; Modified Jendrassik and Nosslin Method.
30. Beckman System E2A Electrolyte Analyzer. Beckman Instruments, Inc.
31. CentrifChem System®; Modified Skeggs and Hockstrasser Method.
32. CentrifChem System®; Alizarin Method.
33. CentrifChem System®; Daly and Ertingshausen Technique.
34. Rodkey, F.L.: Direct spectrophotometric determination of albumin in serum by BCG, Clin. Chem. **11**: 478-487, 1965.
35. Bowers, G.N. and McComb, R.B., Clin Chem. **12**: 70, 1966.
36. Jaffe, M.Z. Physiol. Chem **10**: 391, 1886.
37. Daly, J.A. and Ertingshausen, G., Clin. Chem., **18**: 263, 1972.
38. Reinhold, J.G. *Standard Methods in Clinical Chemistry* I, New York, Academic Press, 88 (1953).
39. Hitachi 705.
40. Urease (UV) Urea automated, Boehringer Mannheim or Merckotest Urea, E. Merck, Darmstadt (Eppendorf ACP 5040).
41. Enzymatic (UV) Creatinin PAP, Boehringer Mannheim (Eppendorf ACP 5040 or MES 5095).
42. Biuret, Test Combination Total Protein, Boehringer Mannheim (Eppendorf ACP 5040).
43. DPD, Peridochrom Bilirubin, Boehringer Mannheim (Eppendorf ACP 5040).
44. Alkalische Phosphatase, Merkotest, E. Merck, Darmstadt (25°C) (Eppendorf ACP 5040).
45. GPT automated, Boehringer Mannheim (25°C) (Eppendorf ACP 5040).
46. GOT automated, Boehringer Mannheim (25°C) (Eppendorf ACP 5040).
47. Dehydrogenase, Merckotest Glucose, E. Merck, Darmstadt (Eppendorf ACP 5040).
48. CHOD-PAP, Monotest Cholesterin, Boehringer Mannheim (Eppendorf ACP 5040).
49. Ion-selective-electrode, Elektrolyte Analyzer 2, Beckmann Inc.
50. Cresolphthalein, Test Combination Calcium, Boehringer Mannheim (Eppendorf ACP 5040).
51. Bromocresolgreen, Sigma Diagnostics, Inc. (Adapted to Eppendorf ACP 5040).
52. S.V.R.® ALT Test, Calbiochem.
53. Alkaline Phosphatase STAT-PACK, Calbiochem.
54. A-GENT® Bilirubin Test, Abbott Laboratories, Inc.
55. CentrifChem System, Alkaline Picrate, Colorimetry; Baker Instruments Corp.
56. Urea concentration, after Talke and Schubert, 1965 (Klin. Wochenschr. **43**: 174).
57. Glucose concentration, after Bondor and Mead, 1974 (Clin. Chem. **20**: 586-590).
58. Alkaline phosphatase activity (AP), after Bessey et. al., 1947 (J. Biol. Chem. **164**: 321).
59. Alanine amino-transferase activity (ALT), by the methodology recommended by the Scandinavian Committee on Enzymes, 1974 (Scand. J. Clin. Lab. Invest. **33**: 291-306).
60. Aspartate amino-transferase activity (AST), by the methodology recommended by the Scandinavian Committee on Enzymes, 1974 (Scand. J. Clin. Lab. Invest. **33**: 291-306).

61. Total protein concentration, after Weichselbaum, 1964 (Am. J. Clin. Pathol., Tech. Sect. **10**: 40).
62. Total bilirubin concentration, after Walters and Gerarde, 1970 (Microchem. J. **15**: 231).
63. Sodium and potassium concentrations, using the Corning flame photometer, model 460.
64. Chloride concentration, after Zal et al., 1956 (Anal. Chem. **28**: 1665).
65. Calcium concentration, after Young et al., 1975 (Clin. Chem. **21**: No. 5).
66. Phosphorus (inorganic) concentration, after Daly and Ertingshausen, 1972 (Clin. Chem. **18**: 263).
67. CentriChem, Gamma-glutamyl transferase; Baker Instruments Corp.
68. Digital Flame Photometer, Instrumentation Laboratory, Inc.
69. Hitachi 737, Chemistry Analyzer; Boehringer Mannheim Diagnostics.
70. IL Monarch™ 2000 Chemistry System; Instrumentation Laboratory.
71. Instrumentation Laboratory Flame Photometer, Instrumentation Laboratory Inc.

**TABLE 3
MALE CD® RATS**

STUDY CODE:	A	GZ	EZ	EZ	HA	HP	HM	
STUDY INTERVAL:	1 WK	2 WKS	2 WKS	3 WKS	4 WKS	4 WKS	4 WKS	
STUDY START DATE:	5/27/82	10/8/85	5/15/90	5/15/90	2/12/88	11/11/86	4/4/86	
NUMBER OF ANIMALS:	10	8	10	5	9	9	10	
CHEMISTRY	UNITS							
ALBUMIN	g/dl	3.50	2.47	3.87	4.10	3.95	3.72	3.69
ALKALINE PHOSPHATASE	IU/l	194.3	381.8	272.8	256.0	169.6	175.8	164.7
ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	27.1	7.9	13.1	11.0	18.4	18.2	16.0
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	90.9	72.1	62.6	53.8	76.2	66.0	58.9
TOTAL BILIRUBIN	mg/dl	0.23	1.08	0.20	0.24	0.16	0.21	0.21
CALCIUM	mg/dl	10.58		10.99	11.90	11.25	10.86	10.86
CHLORIDE	meq/l		104.7	100.7	101.0	101.8	100.2	100.2
CHOLESTEROL	mg/dl	60.3		67.4	68.6	58.1	62.6	74.0
CREATININE	mg/dl		0.21	0.40	0.46	0.56	1.42	0.66
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l			0.60	1.00	0.50	0.80	0.30
GLUCOSE	mg/dl	102.3	185.9	133.3	148.2	130.6	138.2	113.5
PHOSPHORUS	mg/dl			12.03	10.66	9.79	8.72	8.94
TOTAL PROTEIN	g/dl	5.66	5.00	6.81	6.84	7.20	6.81	6.73
GLOBULIN *	g/dl	2.31	2.53	2.94	2.74	3.25	3.09	3.04
ALBUMIN/GLOBULIN*			0.98			1.22	1.21	1.23
POTASSIUM	meq/l	5.29	7.78	6.92	6.16	6.60	6.14	6.03
SODIUM	meq/l	144.0	148.1	150.3	151.2	150.8	152.3	148.1
TRIGLYCERIDES	mg/dl			97.6	117.8	82.7	115.4	99.6
UREA NITROGEN (BUN)	mg/dl	12.8	23.2	12.6	12.6	13.5	13.0	12.5

**TABLE 3
MALE CD® RATS**

STUDY CODE:	A	GZ	EZ	EZ	HA	HP	HM	
STUDY INTERVAL:	1 WK	2 WKS	2 WKS	3 WKS	4 WKS	4 WKS	4 WKS	
STUDY START DATE:	5/27/82	10/8/85	5/15/90	5/15/90	2/12/88	11/11/86	4/4/86	
NUMBER OF ANIMALS:	10	8	10	5	9	9	10	
CHEMISTRY	UNITS							
ALBUMIN	g/dl	3.50	2.47	3.87	4.10	3.95	3.72	3.69
ALKALINE PHOSPHATASE	IU/l	194.3	381.8	272.8	256.0	169.6	175.8	164.7
ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	27.1	7.9	13.1	11.0	18.4	18.2	16.0
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	90.9	72.1	62.6	53.8	76.2	66.0	58.9
TOTAL BILIRUBIN	mg/dl	0.23	1.08	0.20	0.24	0.16	0.21	0.21
CALCIUM	mg/dl	10.58		10.99	11.90	11.25	10.86	10.86
CHLORIDE	meq/l		104.7	100.7	101.0	101.8	100.2	100.2
CHOLESTEROL	mg/dl	60.3		67.4	68.6	58.1	62.6	74.0
CREATININE	mg/dl		0.21	0.40	0.46	0.56	1.42	0.66
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l			0.60	1.00	0.50	0.80	0.30
GLUCOSE	mg/dl	102.3	185.9	133.3	148.2	130.6	138.2	113.5
PHOSPHORUS	mg/dl			12.03	10.66	9.79	8.72	8.94
TOTAL PROTEIN	g/dl	5.66	5.00	6.81	6.84	7.20	6.81	6.73
GLOBULIN *	g/dl	2.31	2.53	2.94	2.74	3.25	3.09	3.04
ALBUMIN/GLOBULIN*			0.98			1.22	1.21	1.23
POTASSIUM	meq/l	5.29	7.78	6.92	6.16	6.60	6.14	6.03
SODIUM	meq/l	144.0	148.1	150.3	151.2	150.8	152.3	148.1
TRIGLYCERIDES	mg/dl			97.6	117.8	82.7	115.4	99.6
UREA NITROGEN (BUN)	mg/dl	12.8	23.2	12.6	12.6	13.5	13.0	12.5

STUDY START DATE:		9/7/89	9/22/88	7/13/83	8/17/87	2/9/83	11/22/85	11/12/81
NUMBER OF ANIMALS:		10	9	5	10	10	10	10
CHEMISTRY	UNITS							
ALBUMIN	g/dl	3.58	3.81	3.94	3.39	3.70	3.67	3.90
ALKALINE PHOSPHATASE	IU/l	152.2	172.9	166.8	139.1	142.0	170.3	208.6
ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	15.2	17.9	15.8	14.8	16.0	21.8	20.2
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	62.1	70.0	55.2	60.9	59.0	70.0	85.0
TOTAL BILIRUBIN	mg/dl	0.31	0.22	0.30	0.31	0.21	0.24	0.60
CALCIUM	mg/dl	10.36	10.86		10.96		10.53	9.60
CHLORIDE	meq/l	101.3	102.3	97.2	99.4	100.0	98.8	101.9
CHOLESTEROL	mg/dl	64.1	52.4	70.2	65.4	73.0	71.6	
CREATININE	mg/dl	0.62	0.34	0.46	0.74	0.50	0.68	1.00
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l	0.30	0.00		0.40			
GLUCOSE	mg/dl	144.8	124.2	88.4	133.2	98.0	111.1	93.7
PHOSPHORUS	mg/dl	9.06	9.66		8.33		8.71	7.20
TOTAL PROTEIN	g/dl	7.67	6.77	7.18	7.03	7.00	6.93	7.30
GLOBULIN *	g/dl	4.09	2.96	3.24	3.64	3.30	3.26	3.40
ALBUMIN/GLOBULIN*				1.22	0.95	1.15	1.14	
POTASSIUM	meq/l	6.99	6.68	6.16	6.40	6.00	6.13	7.50
SODIUM	meq/l	149.5	151.0	152.4	150.7	152.0	151.0	149.6
TRIGLYCERIDES	mg/dl	78.6	94.2	93.0	121.9		94.9	
UREA NITROGEN (BUN)	mg/dl	16.0	13.0	16.3	14.6	13.7	12.2	16.6

**TABLE 3
MALE CD® RATS**

STUDY CODE:	FE	GC	HA	HG	HH	HI	HJ
STUDY INTERVAL:	5 WKS	5 WKS	6 WKS	6 WKS	6 WKS	6 WKS	6 WKS
STUDY START DATE:	9/22/88	7/10/84	2/12/88	9/16/86	7/30/85	8/22/84	4/19/83
NUMBER OF ANIMALS:	5	10	3	10	10	5	10
CHEMISTRY	UNITS						

ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	14.8	14.8	31.4	17.3	39.0	10.1	19.6
ASPARTATE AMINOTRANSFERASE (AST) OR (SGPT)	IU/l	50.4	53.0	130.5	60.9	144.8	56.4	51.8
TOTAL BILIRUBIN	mg/dl	0.34	0.22	0.23	0.22	0.22	0.27	0.22
CALCIUM	mg/dl	11.22	10.64	9.80		9.70		10.88
CHLORIDE	meq/l	99.0	100.6	101.9	98.7	101.2	97.9	100.8
CHOLESTEROL	mg/dl	81.8	58.0	66.0		78.2		70.2
CREATININE	mg/dl	0.66	0.54	0.50	0.66	0.60	0.50	0.68
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l	0.80	1.20	0.00		0.20		1.00
GLUCOSE	mg/dl	174.2	195.6	123.5	89.7	124.4	132.0	144.6
PHOSPHORUS	mg/dl	8.58	8.87	9.29		8.67		8.24
TOTAL PROTEIN	g/dl	7.54	7.56	6.20	7.12	6.30	6.87	7.04
GLOBULIN *	g/dl	4.04	3.74	2.30	3.10	2.40	3.00	3.44
ALBUMIN/GLOBULIN*				1.64		1.60	1.32	1.06
POTASSIUM	meq/l	6.10	5.94	4.20	6.24	4.10	6.66	6.32
SODIUM	meq/l	151.0	150.0	146.4	151.9	143.4	151.9	151.4
TRIGLYCERIDES	mg/dl	125.2	102.8	56.9		98.8		100.6
UREA NITROGEN (BUN)	mg/dl	13.9	12.5	15.2	11.8	15.1	11.1	14.0

**TABLE 3
MALE CD® RATS**

STUDY CODE:		HY	HU	GB	GA	IA	EI	DW
STUDY INTERVAL:		11 WKS	13 WKS	13 WKS	13 WKS	13WKS	13WKS	13WKS
STUDY START DATE:		11/16/83	5/28/87	11/6/84	2/25/82	1/6/87	2/6/85	3/8/85
NUMBER OF ANIMALS:		8	10	10	10	12	9	9
CHEMISTRY	UNITS							
ALBUMIN	g/dl		3.80	3.47	3.70	3.80	3.54	3.32
ALKALINE PHOSPHATASE	IU/l	79.0	106.1	94.6	115.0	70.0	113.6	88.1
ALANINE AMINOTRANSFERASE (ALT) OR	IU/l	19.0	19.1	18.8	14.0	27.0	16.3	14.3

(SGPT)								
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	71.0	55.4	61.2	50.0	80.0	57.0	57.6
TOTAL BILIRUBIN	mg/dl	0.20	0.29	0.33	0.32	0.40	0.23	0.28
CALCIUM	mg/dl	5.20	11.06	11.38	10.30	10.40	10.92	10.74
CHLORIDE	meq/l	101.0	100.6	101.1	97.0	102.0	99.0	98.7
CHOLESTEROL	mg/dl		64.6	73.9	72.0	68.0	67.3	86.1
CREATININE	mg/dl		0.66	0.67	0.60	0.40	0.48	0.50
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l		0.20					
GLUCOSE	mg/dl	123.0	143.8	105.5	112.0	130.0	145.9	128.1
PHOSPHORUS	mg/dl	5.90	7.57	7.44	7.90	7.40	8.22	8.00
TOTAL PROTEIN	g/dl		7.57	7.08	7.80	6.50	7.43	6.99
GLOBULIN *	g/dl	3.70	3.77	3.61	4.00		3.89	3.67
ALBUMIN/GLOBULIN*		1.00	1.02	0.97	0.95	1.40	0.92	0.91
POTASSIUM	meq/l	3.60	6.39	6.14		5.00	6.47	6.18
SODIUM	meq/l	147.0	148.7	152.6	154.0	146.0	149.4	149.9
TRIGLYCERIDES	mg/dl		111.7	100.7	128.0	106.0	151.6	124.4
UREA NITROGEN (BUN)	mg/dl	33.0	12.9	12.8	13.4	13.9	13.4	15.6

**TABLE 3
MALE CD® RATS**

STUDY CODE:	EH	HF	HV	HW	HX	FB	GC	
STUDY INTERVAL:	13 WKS	13 WKS	13 WKS	13 WKS	13 WKS	13 WKS	13 WKS	
STUDY START DATE:	7/27/88	11/12/81	12/15/87	10/17/84	5/31/83	10/12/89	7/10/84	
NUMBER OF ANIMALS:	10	10	15	40	35	10	10	
CHEMISTRY	UNITS							
ALBUMIN	g/dl	3.69	3.70	3.11	3.46	3.38	4.11	3.75
ALKALINE PHOSPHATASE	IU/l	93.4	105.2	125.4	165.3	162.6	98.1	165.6
ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	16.6	19.0	54.2	35.3	18.1	13.1	35.3
ASPARTATE								

CREATININE	mg/dl	0.50	1.06	0.46	0.60	0.79	0.64	0.63
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l		0.80	0.40				
GLUCOSE	mg/dl	148.0	118.4	167.5	104.0	110.2	143.2	145.0
PHOSPHORUS	mg/dl	6.50	5.49	7.07				
TOTAL PROTEIN	g/dl	6.50	7.87	7.69	8.00	7.86	7.78	7.30
GLOBULIN *	g/dl		4.13	3.96	4.00	4.13		
ALBUMIN/GLOBULIN*		1.10	0.91	0.94	0.98	0.90	0.85	0.92
POTASSIUM	meq/l	5.10	6.45	6.14	6.60	6.24		
SODIUM	meq/l	143.0	143.8	149.8	153.0	150.8		
TRIGLYCERIDES	mg/dl	121.0	211.6	158.8				
UREA NITROGEN (BUN)	mg/dl	12.8	17.1	13.2	13.8	16.1	14.9	16.7

**TABLE 3
MALE CD® RATS**

STUDY CODE:		HV	IM	IN	IO	IP	IQ	IR
STUDY INTERVAL:		26 WKS	26 WKS	26 WKS	26 WKS	26 WKS	26 WKS	26 WKS
STUDY START DATE:		12/15/87	7/28/87	3/8/88	2/15/85	11/12/84	5/19/86	11/12/84
NUMBER OF ANIMALS:		15	10	10	10	10	10	10
CHEMISTRY	UNITS							
ALBUMIN	g/dl	3.50	4.00	3.60	3.80	3.70	3.90	3.70
ALKALINE PHOSPHATASE	IU/l	150.4	59.0	89.0	57.0	63.0	69.0	58.0
ALANINE AMINOTRANS- FERASE (ALT) OR (SGPT)	IU/l	49.9	35.0	28.0	28.0	38.0	45.0	30.0
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	65.3	135.0	74.0	104.0	107.0	108.0	117.0
TOTAL BILIRUBIN	mg/dl	0.06	0.20	0.20	0.20	0.30	0.20	0.20
CALCIUM	mg/dl	9.58	11.00	10.70	10.40	10.70	10.90	10.50
CHLORIDE	meq/l			105.0	103.0			
CHOLESTEROL	mg/dl	94.1	103.0	75.0	107.0	82.0	86.0	83.0
CREATININE	mg/dl	0.48	0.70	0.90	0.70	0.80	0.80	0.70
GAMMA GLUTAMYL								

UREA NITROGEN (BUN)	mg/dl	17.0	17.0	14.0	15.0	11.0	14.0	16.0
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**TABLE 3
MALE CD® RATS**

STUDY CODE:		A	IK	IL	HX	IK	HY	IO
STUDY INTERVAL:		78 WKS	79 WKS	79 WKS	79 WKS	98 WKS	103 WKS	104 WKS
STUDY START DATE:		5/27/82	6/30/88	12/10/87	5/31/83	6/30/88	11/16/83	2/15/85
NUMBER OF ANIMALS:		10	10	10	35	12	8	10
CHEMISTRY	UNITS							
ALBUMIN	g/dl	4.05	3.56	4.00	3.24	3.35		3.40
ALKALINE PHOSPHATASE	IU/l	44.0	107.1	77.0	100.7	101.6	73.0	41.0
ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	27.3	60.5	38.0	41.7	86.8	50.0	65.0
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	79.4	114.2	77.0	75.0	151.8	108.0	172.0
TOTAL BILIRUBIN	mg/dl	0.34	0.45	0.10	0.38	0.28	0.70	0.20
CALCIUM	mg/dl	11.00	11.13	10.30		11.63	10.80	10.70
CHLORIDE	meq/l		105.2	107.0		104.8	104.0	106.0
CHOLESTEROL	mg/dl	158.6	154.5	132.0	216.8	152.2		177.0
CREATININE	mg/dl		0.70	0.70	0.57	0.87		0.80
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l		4.60	2.00		3.08		3.00
GLUCOSE	mg/dl	134.0	170.9	112.0	155.8	199.0	103.0	128.0
PHOSPHORUS	mg/dl		5.07	6.30		5.29	4.50	6.00
TOTAL PROTEIN	g/dl	6.89	6.75	6.60	7.42	6.53		6.30
GLOBULIN *	g/dl	2.84		2.60			4.00	3.00
ALBUMIN/GLOBULIN*			1.13	1.59	0.79	1.08	0.70	1.10
POTASSIUM	meq/l	5.07	4.61	5.80		4.31	3.70	
SODIUM	meq/l	151.4	144.6	146.0		145.3	145.0	
TRIGLYCERIDES	mg/dl		386.8	215.0		227.3		138.0
UREA NITROGEN (BUN)	mg/dl	13.2	16.5	13.0	13.3	21.6	28.0	16.0

**TABLE 3
MALE CD® RATS**

STUDY CODE:	IM	IN	IP	IQ	IR	IS	A	
STUDY INTERVAL:	104 WKS	104 WKS	104 WKS	104 WKS	104 WKS	104 WKS	104 WKS	
STUDY START DATE:	7/28/87	3/8/88	11/12/84	5/19/86	11/12/84	4/10/84	5/27/82	
NUMBER OF ANIMALS:	10	9	10	10	10	10	10	
CHEMISTRY	UNITS							
ALBUMIN	g/dl	2.80	2.60	2.80	2.90	2.90	3.20	2.82
ALKALINE PHOSPHATASE	IU/l	73.0	91.0	34.0	35.0	42.0	36.0	47.9
ALANINE AMINOTRANS- FERASE (ALT) OR (SGPT)	IU/l	25.0	32.0	33.0	31.0	34.0	37.0	30.1
ASPARTATE AMINOTRANSFERASE (AST)OR (SGOT)	IU/l	84.0	127.0	112.0	109.0	124.0	110.0	110.4
TOTAL BILIRUBIN	mg/dl	0.20	0.10	0.30	0.20	0.30	0.20	0.22
CALCIUM	mg/dl	10.60	10.10	10.70	10.40	11.00	10.50	9.82
CHLORIDE	meq/l		101.0					
CHOLESTEROL	mg/dl	159.0	141.0	207.0	145.0	174.0	132.0	144.6
CREATININE	mg/dl	1.20	1.60	1.40	0.80	1.10	1.20	
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l	4.00	4.00	1.00	1.00	3.00		
GLUCOSE	mg/dl	163.0	140.0	115.0	133.0	113.0	147.0	91.6
PHOSPHORUS	mg/dl	6.50	6.20	7.10	6.20	6.60	6.60	
TOTAL PROTEIN	g/dl	6.50	6.30	6.10	5.90	6.00	6.20	6.37
GLOBULIN *	g/dl	3.70	3.60	3.40	3.00	3.10	3.00	3.55
ALBUMIN/GLOBULIN*		0.80	0.70	0.90	1.00	1.00	1.10	
POTASSIUM	meq/l		4.80					4.46
SODIUM	meq/l		145.0					145.5
TRIGLYCERIDES	mg/dl	209.0	151.0	229.0	114.0	188.0	132.0	
UREA NITROGEN (BUN)	mg/dl	25.0	36.0	29.0	15.0	28.0	34.0	15.9

TABLE 3

MALE CD® RATS

STUDY INTERVAL:		104 WKS	105 WKS
STUDY START DATE:		9/24/87	12/10/87
NUMBER OF ANIMALS:		10	10
CHEMISTRY	UNITS		
ALBUMIN	g/dl	2.96	3.50
ALKALINE PHOSPHATASE	IU/l	80.6	72.0
ALANINE AMINOTRANSFERASE (ALT) OR (SGOT)	IU/l	35.7	40.0
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	76.3	94.0
TOTAL BILIRUBIN	mg/dl	0.31	0.20
CALCIUM	mg/dl	10.78	9.80
CHLORIDE	meq/l	99.1	97.0
CHOLESTEROL	mg/dl	176.5	107.0
CREATININE	mg/dl	1.10	0.60
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l	1.50	2.00
GLUCOSE	mg/dl	119.5	95.0
PHOSPHORUS	mg/dl	4.89	6.50
TOTAL PROTEIN	g/dl	6.22	5.80
GLOBULIN *	g/dl		2.20
ALBUMIN/GLOBULIN*		0.91	1.62
POTASSIUM	meq/l	4.58	5.30
SODIUM	meq/l	142.4	139.0
TRIGLYCERIDES	mg/dl	309.7	108.0
UREA NITROGEN (BUN)	mg/dl	32.5	12.0

* = Calculated value

Serum Chemistry Parameters for the CRL:CD®BR Rat

February 1993

TABLE 4 FEMALE CD® RATS								
STUDY CODE:		A	GZ	EZ	EZ	HA	HP	HM
STUDY INTERVAL:		1 WK	2 WKS	2 WKS	3 WKS	4 WKS	4 WKS	4 WKS
STUDY START DATE:		5/27/82	10/8/85	5/15/90	5/15/90	2/12/88	11/11/86	4/4/86
NUMBER OF ANIMALS:		10	8	10	5	9	10	10
CHEMISTRY	UNITS							
ALBUMIN	g/dl	3.57	2.66	4.09	4.28	3.88	4.13	3.75
ALKALINE PHOSPHATASE	IU/l	170.9	405.6	176.3	164.0	141.1	124.1	143.3
ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	21.2	8.8	10.7	11.0	16.0	11.9	14.4
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	76.1	70.6	55.7	54.8	88.1	62.9	69.7
TOTAL BILIRUBIN	mg/dl	0.17	1.31	0.17	0.16	0.21	0.19	0.27
CALCIUM	mg/dl	9.79		11.33	11.56	11.04	10.84	10.81
CHLORIDE	meq/l		103.9	100.9	102.4	102.2	100.7	103.6
CHOLESTEROL	mg/dl	61.6		80.1	64.8	72.9	72.8	75.8
CREATININE	mg/dl		0.28	0.35	0.34	0.57	1.27	0.63
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l			1.10	0.40	0.30	1.10	1.40
GLUCOSE	mg/dl	112.4	206.7	151.4	130.0	105.1	118.2	114.7
PHOSPHORUS	mg/dl			10.60	10.70	8.70	8.31	9.21
TOTAL PROTEIN	g/dl	6.01	5.49	7.10	6.80	7.42	7.08	6.87
GLOBULIN *	g/dl	3.55	2.83	3.01	2.52	3.54	2.95	3.12
ALBUMIN/GLOBULIN*			0.95			1.11	1.40	1.21
POTASSIUM	meq/l	5.06	7.77	6.75	6.42	6.64	6.52	6.90
SODIUM	meq/l	141.8	142.7	148.6	149.4	148.5	150.5	147.7
TRIGLYCERIDES	mg/dl			80.8	86.8	69.1	69.0	86.7
UREA NITROGEN (BUN)	mg/dl	15.2	24.2	14.0	16.4	16.4	14.2	16.3

**TABLE 4
FEMALE CD® RATS**

STUDY CODE:	HO	HI	HL	HQ	HR	FD	FA	
STUDY INTERVAL:	4 WKS	4 WKS	4 WKS	4 WKS	4 WKS	4 WKS	4 WKS	
STUDY START DATE:	11/19/85	8/22/84	11/14/83	12/15/82	4/16/82	3/1/90	9/29/89	
NUMBER OF ANIMALS:	10	10	10	10	10	10	10	
CHEMISTRY	UNITS							
ALBUMIN	g/dl	4.31	4.17	4.64	4.04	4.16	4.21	4.01
ALKALINE PHOSPHATASE	IU/l	97.6	114.6	97.2	128.0	138.5	104.8	99.5
ALANINE AMINOTRANSFERASE (ALT) OR (SGOT)	IU/l	19.0	13.5	15.3	15.9	14.7	13.1	12.7
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	60.1	55.7	62.4	60.8	62.2	53.4	49.5
TOTAL BILIRUBIN	mg/dl	0.22	0.23	0.19	0.22	0.31	0.25	0.21
CALCIUM	mg/dl		11.16				11.26	11.03
CHLORIDE	meq/l	98.9	100.0	98.1	102.7	98.3	102.2	100.8
CHOLESTEROL	mg/dl	80.2	73.3	70.4	85.9	82.7	76.0	73.4
CREATININE	mg/dl	0.74	0.43	0.57	0.40	0.64	0.48	0.57
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l						0.60	0.30
GLUCOSE	mg/dl	109.3	121.8	103.4	119.8	86.6	137.4	191.3
PHOSPHORUS	mg/dl		8.28				9.12	9.21
TOTAL PROTEIN	g/dl	7.79	7.29	8.09	7.26	7.28	7.95	7.50
GLOBULIN *	g/dl	3.48	3.12	3.45	3.22	3.12	3.74	3.49
ALBUMIN/GLOBULIN*			1.34		1.27			
POTASSIUM	meq/l	6.57	5.73	6.18	7.68	6.07	6.86	6.01
SODIUM	meq/l	149.2	147.5	149.7	148.4	149.2	149.1	149.6
TRIGLYCERIDES	mg/dl		84.0		83.1		75.7	60.7
UREA NITROGEN (BUN)	mg/dl	16.3	13.1	17.2	15.8	16.6	14.8	12.4

**TABLE 4
FEMALE CD® RATS**

STUDY CODE:	FC	FE	HN	HC	HD	HE	HF	
STUDY INTERVAL:	4 WKS	4 WKS	4 WKS	5 WKS	5 WKS	5 WKS	5 WKS	
STUDY START DATE:	9/7/89	9/22/88	7/13/83	8/17/87	2/9/83	11/22/85	11/12/81	
NUMBER OF ANIMALS:	9	9	5	10	10	10	10	
CHEMISTRY	UNITS							
ALBUMIN	g/dl	3.92	4.18	4.10	4.13	4.10	3.83	3.90
ALKALINE PHOSPHATASE	IU/l	112.0	137.9	135.4	97.2	121.0	123.5	146.2
ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	15.7	14.5	13.6	12.1	18.0	16.6	17.8
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	75.8	66.3	71.0	57.6	66.0	65.1	88.9
TOTAL BILIRUBIN	mg/dl	0.29	0.25	0.18	0.28	0.20	0.23	0.40
CALCIUM	mg/dl	10.78	11.02		11.35		10.58	9.60
CHLORIDE	meq/l	102.0	102.9	99.2	100.8	100.0	98.8	99.0
CHOLESTEROL	mg/dl	67.0	71.2	66.8	86.5	78.0	69.1	
CREATININE	mg/dl	0.55	0.32	0.42	0.71	0.40	0.67	0.80
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l	0.60	0.70		0.60			
GLUCOSE	mg/dl	127.0	114.6	90.2	128.9	99.0	99.7	98.9
PHOSPHORUS	mg/dl	8.56	9.84		7.56		9.17	6.10
TOTAL PROTEIN	g/dl	7.85	7.42	7.48	7.45	7.30	7.21	7.50
GLOBULIN *	g/dl	3.93	3.24	3.38	3.32	3.20	3.38	3.60
ALBUMIN/GLOBULIN*				1.21	1.25	1.27	1.15	
POTASSIUM	meq/l	7.13	7.79	6.84	6.55	6.50	6.46	6.80
SODIUM	meq/l	148.6	150.1	149.2	148.4	150.0	150.0	149.2
TRIGLYCERIDES	mg/dl	65.5	81.6	80.4	86.8		77.8	
UREA NITROGEN (BUN)	mg/dl	16.5	15.3	18.6	15.9	18.0	13.4	20.7

**TABLE 4
FEMALE CD® RATS**

STUDY CODE:	FE	GC	HA	HG	HH	HI	HJ

STUDY INTERVAL:		5 WKS	5 WKS	6 WKS	6 WKS	6 WKS	6 WKS	6 WKS
STUDY START DATE:		9/22/88	7/10/84	2/12/88	9/16/86	7/30/85	8/22/84	4/19/83
NUMBER OF ANIMALS:		5	10	3	10	10	5	10
CHEMISTRY	UNITS							
ALBUMIN	g/dl	4.30	3.56	4.40	3.66	3.90	4.46	4.14
ALKALINE PHOSPHATASE	IU/l	77.8	243.3	96.7	132.3	176.3	99.0	169.4
ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	15.4	41.1	16.0	11.5	13.3	12.8	13.4
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	51.4	81.5	79.0	56.4	59.8	51.2	64.2
TOTAL BILIRUBIN	mg/dl	0.24	0.17	0.20	0.28	0.20	0.20	0.26
CALCIUM	mg/dl	11.24	10.26	11.23			10.18	
CHLORIDE	meq/l	103.2		102.3	99.6	99.2	97.4	98.6
CHOLESTEROL	mg/dl	83.6	101.5	59.0			73.8	
CREATININE	mg/dl	0.30	0.50	0.77	1.02	0.39	0.48	0.56
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l	0.20		0.30				
GLUCOSE	mg/dl	118.6	149.9	119.0	96.9	104.3	100.8	102.9
PHOSPHORUS	mg/dl	7.80		8.27			6.94	
TOTAL PROTEIN	g/dl	7.56	6.42	7.47	6.66	6.82	7.98	6.81
GLOBULIN *	g/dl	3.34		3.07	3.00	2.92	3.52	2.67
ALBUMIN/GLOBULIN*			1.24	1.43	1.24	1.35	1.28	1.57
POTASSIUM	meq/l	7.72	5.88	8.17	6.93	6.74	6.04	6.57
SODIUM	meq/l	148.8	140.7	147.3	149.8	149.6	147.6	149.0
TRIGLYCERIDES	mg/dl	87.6		88.7			76.6	
UREA NITROGEN (BUN)	mg/dl	15.2	21.1	15.9	11.5	13.0	16.6	14.3

**TABLE 4
FEMALE CD® RATS**

STUDY CODE:	FD	FA	HK	HS	HK	HT	HM
STUDY INTERVAL:	6 WKS	6 WKS	6 WKS	7 WKS	7 WKS	8 WKS	8 WKS
STUDY START DATE:	3/1/90	9/29/89	12/13/88	2/4/82	12/13/88	8/26/87	4/4/86
NUMBER OF ANIMALS:	5	5	15	10	15	10	5

ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	16.6	24.9	42.0	33.1	14.1	13.7	18.5
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	54.8	85.5	69.8	69.0	69.6	50.0	68.3
TOTAL BILIRUBIN	mg/dl	0.22	0.30	0.09	0.17	0.42	0.20	0.27
CALCIUM	mg/dl	11.40	9.50	9.22			11.07	11.58
CHLORIDE	meq/l	102.3	104.5				102.6	99.5
CHOLESTEROL	mg/dl	79.4		74.2	97.2	103.8	76.2	95.5
CREATININE	mg/dl	0.44	0.90	0.45	0.59	0.59	0.44	0.69
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l	0.40					0.40	0.40
GLUCOSE	mg/dl	143.6	103.5	132.0	153.4	150.4	139.2	172.0
PHOSPHORUS	mg/dl	7.73	4.20				8.15	6.75
TOTAL PROTEIN	g/dl	7.67	8.30	7.30	7.43	7.27	7.74	8.08
GLOBULIN *	g/dl	3.39	4.10	3.47			3.34	3.76
ALBUMIN/GLOBULIN*		1.27			0.96	1.13		1.16
POTASSIUM	meq/l	6.66	5.20	4.55			6.66	6.58
SODIUM	meq/l	148.6	146.0	143.7			148.8	148.3
TRIGLYCERIDES	mg/dl	87.9					70.7	109.5
UREA NITROGEN (BUN)	mg/dl	13.1	18.5	8.0	17.7	18.8	14.2	15.3

TABLE 4 FEMALE CD® RATS								
STUDY CODE:		GC	IO	IP	IQ	IR	IJ	IK
STUDY INTERVAL:		13 WKS	13 WKS	13 WKS	13 WKS	13 WKS	13 WKS	13 WKS
STUDY START DATE:		7/10/84	2/15/85	11/12/84	5/19/86	11/12/84	9/24/87	6/30/88
NUMBER OF ANIMALS:		10	10	10	10	10	10	10
CHEMISTRY	UNITS							
ALBUMIN	g/dl	3.81	4.60	4.50	4.80	4.70	4.34	4.43
ALKALINE PHOSPHATASE	IU/l	150.8	33.0	33.0	34.0	28.0	92.7	97.8
ALANINE AMINOTRANSFERASE (ALT) OR	IU/l	37.7	48.0	44.0	30.0	45.0	33.8	39.6

(SGPT)								
ASPARTATE AMINOTRANSFERASE (AST) OR (SGPT)	IU/l	70.8	119.0	124.0	94.0	108.0	68.4	86.3
TOTAL BILIRUBIN	mg/dl	0.17	0.20	0.20	0.20	0.20	0.51	0.19
CALCIUM	mg/dl	10.62	11.00	11.00	11.10	11.50	10.52	11.15
CHLORIDE	meq/l		103.0				102.6	105.2
CHOLESTEROL	mg/dl	96.5	83.0	76.0	105.0	81.0	92.7	83.6
CREATININE	mg/dl	0.57	0.90	0.80	0.70	0.80	0.53	0.65
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l		1.00	0.00	1.00	0.00	0.00	0.00
GLUCOSE	mg/dl	146.7	108.0	96.0	101.0	111.0	157.1	153.5
PHOSPHORUS	mg/dl		7.40	7.60	6.20	7.20	4.43	3.74
TOTAL PROTEIN	g/dl	7.25	7.40	7.20	7.30	7.40	6.89	6.72
GLOBULIN *	g/dl		2.80	2.70	2.50	2.80		
ALBUMIN/GLOBULIN*		1.12	1.70	1.70	1.90	1.70	1.73	1.96
POTASSIUM	meq/l	5.94					4.34	4.07
SODIUM	meq/l	142.3					141.0	142.3
TRIGLYCERIDES	mg/dl		41.0	31.0	40.0	66.0	250.9	114.6
UREA NITROGEN (BUN)	mg/dl	21.0	16.0	18.0	16.0	17.0	17.6	20.4

**TABLE 4
FEMALE CD® RATS**

STUDY CODE:	EG	IL	GB	HU	EI	GA	HF	
STUDY INTERVAL:	14 WKS	14 WKS	17 WKS	17 WKS	17 WKS	17 WKS	25 WKS	
STUDY START DATE:	11/12/86	12/10/87	11/6/84	5/28/87	2/6/85	2/25/82	11/12/81	
NUMBER OF ANIMALS:	13	10	5	5	4	5	10	
CHEMISTRY	UNITS							
ALBUMIN	g/dl	4.46	5.50	4.32	5.24	4.58	4.00	4.30
ALKALINE PHOSPHATASE	IU/l	92.2	67.0	75.6	64.4	69.0	64.0	84.1
ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	14.9	48.0	20.6	51.8	52.2	23.0	27.3
ASPARTATE								

CREATININE	mg/dl	0.80		0.68	0.54	0.77	0.42	0.60
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l	2.00		0.20	0.00	2.40		0.00
GLUCOSE	mg/dl	111.0	129.6	161.0	152.2	128.5	111.0	129.0
PHOSPHORUS	mg/dl	6.30		3.74	3.92	5.99	5.49	6.80
TOTAL PROTEIN	g/dl	7.60	7.14	7.21	7.03	8.84	8.56	7.30
GLOBULIN *	g/dl	3.00	2.77			3.91	4.02	1.50
ALBUMIN/GLOBULIN*		1.50		2.14	1.84	1.26	1.14	3.97
POTASSIUM	meq/l		4.04	3.83	4.20	5.97	5.24	5.60
SODIUM	meq/l		143.9	142.4	141.6	148.0	148.4	148.0
TRIGLYCERIDES	mg/dl	106.0		202.0	388.9	93.7	94.4	86.0
UREA NITROGEN (BUN)	mg/dl	13.0	13.8	19.4	15.3	14.7	16.5	12.0

TABLE 4 FEMALE CD® RATS								
STUDY CODE:	FG	HY	HY	IK	IJ	HW	HX	
STUDY INTERVAL:	30WKS	38WKS	51WKS	51WKS	52WKS	52WKS	52WKS	
STUDY START DATE:	4/5/88	11/16/83	11/16/83	6/30/88	9/24/87	10/17/84	5/31/83	
NUMBER OF ANIMALS:	3	8	8	20	10	40	35	
CHEMISTRY	UNITS							
ALBUMIN	g/dl	5.04			4.61	4.45	4.11	3.97
ALKALINE PHOSPHATASE	IU/l	62.4	37.0	35.0	83.3	78.5	87.9	84.6
ALANINE AMINOTRANS- FERASE (ALT) OR (SGPT)	IU/l	46.2	39.0	31.0	51.6	59.4	50.6	48.0
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	107.0	74.0	73.0	96.2	104.3	96.3	97.7
TOTAL BILIRUBIN	mg/dl	0.30	0.30	0.40	0.39	0.26	0.08	0.40
CALCIUM	mg/dl	12.34	10.62	10.82	11.20	10.70		
CHLORIDE	meq/l	101.4	100.0	102.0	102.2	103.5		
CHOLESTEROL	mg/dl	127.2			125.9	117.2	131.0	141.2
CREATININE	mg/dl	0.48			0.56	0.57	0.66	0.61
GAMMA GLUTAMYL TRANSPEPTIDASE	IU/l	1.20			0.35	0.20		

(GGT)								
GLUCOSE	mg/dl	190.2	139.0	138.0	146.6	141.1	142.8	137.4
PHOSPHORUS	mg/dl	6.90	4.10	4.80	3.57	3.95		
TOTAL PROTEIN	g/dl	8.78			6.96	7.03	7.97	7.74
GLOBULIN *	g/dl	3.74	4.30	5.00				
ALBUMIN/GLOBULIN*		1.35	0.90	0.60	1.98	1.75	1.03	1.06
POTASSIUM	meq/l	6.26	3.60	3.20	3.70	4.11		
SODIUM	meq/l	147.6	146.0	145.0	142.0	141.6		
TRIGLYCERIDES	mg/dl	159.8			428.9	491.6		
UREA NITROGEN (BUN)	mg/dl	15.8	39.0	38.0	20.1	15.8	16.0	16.4

**TABLE 4
FEMALE CD® RATS**

STUDY CODE:	EO	IM	IN	IO	IP	A	IQ	
STUDY INTERVAL:	52WKS	52WKS	52WKS	52WKS	52WKS	52WKS	52WKS	
STUDY START DATE:	10/8/86	7/28/87	3/8/88	2/15/85	11/12/84	5/27/82	5/19/86	
NUMBER OF ANIMALS:	18	10	10	10	10	10	10	
CHEMISTRY	UNITS							
ALBUMIN	g/dl	4.59	3.80	3.90	3.90	4.20	4.49	4.30
ALKALINE PHOSPHATASE	IU/l	37.4	38.0	29.0	17.0	17.0	25.2	18.0
ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	20.1	28.0	30.0	29.0	35.0	30.1	29.0
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	60.2	63.0	95.0	90.0	112.0	66.1	98.0
TOTAL BILIRUBIN	mg/dl	0.37	0.60	0.30	0.20	0.20	0.31	0.20
CALCIUM	mg/dl	11.98	10.40	10.20	10.30	10.10	10.97	11.40
CHLORIDE	meq/l	98.9		103.0	106.0			
CHOLESTEROL	mg/dl	122.3	91.0	124.0	104.0	127.0	107.1	154.0
CREATININE	mg/dl	0.70	0.80	0.80	0.70	0.70		0.80
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l	0.40	3.00	6.00	1.00	1.00		0.00
GLUCOSE	mg/dl	164.0	139.0	148.0	167.0	174.0	139.5	138.0
PHOSPHORUS	mg/dl	6.05	4.50	5.10	5.30	4.40		5.60
TOTAL PROTEIN	g/dl	8.44	7.50	7.30	6.50	6.80	7.58	7.10

TRIGLYCERIDES	mg/dl	279.5	236.0	403.0	130.0	208.0	122.0	210.0
UREA NITROGEN (BUN)	mg/dl	15.1	14.0	12.0	13.0	14.0	12.0	13.0

**TABLE 4
FEMALE CD® RATS**

STUDY CODE:		IS	A	IK	IL	HX	IK	HY
STUDY INTERVAL:		78 WKS	78 WKS	79 WKS	79 WKS	79 WKS	98 WKS	103 WKS
STUDY START DATE:		4/10/84	5/27/82	6/30/88	12/10/87	5/31/83	6/30/88	11/16/83
NUMBER OF ANIMALS:		10	10	10	10	35	13	8
CHEMISTRY	UNITS							
ALBUMIN	g/dl	4.30	5.13	4.49	5.10	4.04	4.03	
ALKALINE PHOSPHATASE	IU/l	29.0	20.9	82.4	33.0	74.5	81.7	45.0
ALANINE AMINOTRANS- FERASE (ALT) OR (SGPT)	IU/l	29.0	23.2	58.6	43.0	76.1	50.1	46.0
ASPARTATE aminotransferase (AST) OR (SGOT)	IU/l	100.0	74.4	107.2	95.0	134.8	102.2	93.0
TOTAL BILIRUBIN	mg/dl	0.30	0.33	0.33	0.10	0.57	0.29	1.00
CALCIUM	mg/dl	11.00	11.13	11.49	10.60		11.30	10.82
CHLORIDE	meq/l			106.0	104.0		100.8	106.0
CHOLESTEROL	mg/dl	115.0	152.2	142.5	102.0	127.4	127.2	
CREATININE	mg/dl	0.80		0.73	0.60	0.61	0.63	
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l			1.80	1.00			
GLUCOSE	mg/dl	119.0	121.4	152.4	92.0	142.3	146.2	128.0
PHOSPHORUS	mg/dl	5.30		4.99	5.70		4.99	4.70
TOTAL PROTEIN	g/dl	7.30	7.91	7.40	7.40	7.96	7.15	
GLOBULIN *	g/dl	3.00	2.78		2.30			3.80
ALBUMIN/GLOBULIN*		1.50		1.56	2.28	1.03		1.00
POTASSIUM	meq/l		4.34	3.65	5.20		3.74	3.80
SODIUM	meq/l		152.0	144.3	144.0		142.2	144.0
TRIGLYCERIDES	mg/dl	152.0		307.5	237.0		353.8	
UREA NITROGEN	mg/dl	16.0	14.0	13.1	14.0	16.3	13.6	27.0

(BUN)								
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TABLE 4 FEMALE CD® RATS								
STUDY CODE:		IO	IM	IN	IP	IQ	IR	IS
STUDY INTERVAL:		104 WKS	104 WKS	104 WKS	104 WKS	104 WKS	104 WKS	104 WKS
STUDY START DATE:		2/15/85	7/28/87	3/8/88	11/12/84	5/19/86	11/12/84	4/10/84
NUMBER OF ANIMALS:		10	10	10	10	9	10	10
CHEMISTRY	UNITS							
ALBUMIN	g/dl	3.80	3.60	3.50	3.90	3.50	3.70	3.90
ALKALINE PHOSPHATASE	IU/l	38.0	41.0	59.0	26.0	23.0	19.0	17.0
ALANINE AMINOTRANS- FERASE (ALT) OR (SGPT)	IU/l	22.0	25.0	24.0	30.0	23.0	34.0	22.0
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	104.0	103.0	82.0	108.0	128.0	97.0	114.0
TOTAL BILIRUBIN	mg/dl	0.20	0.30	0.20	0.20	0.20	0.40	0.20
CALCIUM	mg/dl	11.00	10.70	10.50	10.80	10.50	11.50	10.60
CHLORIDE	meq/l	103.0		101.0				
CHOLESTEROL	mg/dl	139.0	103.0	94.0	134.0	142.0	161.0	113.0
CREATININE	mg/dl	0.80	0.70	0.70	1.20	0.70	0.70	0.60
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l	0.00	3.00	5.00	0.00	0.00	1.00	
GLUCOSE	mg/dl	114.0	123.0	167.0	141.0	134.0	120.0	131.0
PHOSPHORUS	mg/dl	5.90	5.30	5.10	5.90	5.20	6.20	5.40
TOTAL PROTEIN	g/dl	6.60	7.00	7.10	6.50	6.40	6.80	6.90
GLOBULIN *	g/dl	2.80	3.40	3.70	2.60	2.90	3.20	3.00
ALBUMIN/GLOBULIN*		1.40	1.10	0.90	1.50	1.20	1.20	1.40
POTASSIUM	meq/l			5.10				
SODIUM	meq/l			142.0				
TRIGLYCERIDES	mg/dl	191.0	240.0	123.0	187.0	86.0	281.0	111.0
UREA NITROGEN (BUN)	mg/dl	17.0	16.0	19.0	25.0	15.0	24.0	15.0

**TABLE 4
FEMALE CD® RATS**

STUDY CODE:	A	IJ	IL	
STUDY INTERVAL:	104 WKS	104 WKS	105 WKS	
STUDY START DATE:	5/27/82	9/24/87	12/10/87	
NUMBER OF ANIMALS:	10	10	10	
CHEMISTRY	UNITS			
ALBUMIN	g/dl	3.60	3.89	4.30
ALKALINE PHOSPHATASE	IU/l	47.2	85.3	68.0
ALANINE AMINOTRANSFERASE (ALT) OR (SGPT)	IU/l	34.9	54.8	30.0
ASPARTATE AMINOTRANSFERASE (AST) OR (SGOT)	IU/l	121.5	142.5	99.0
TOTAL BILIRUBIN	mg/dl		0.29	0.30
CALCIUM	mg/dl	9.95	10.67	10.10
CHLORIDE	meq/l		97.3	96.0
CHOLESTEROL	mg/dl	122.3	121.7	93.0
CREATININE	mg/dl		0.72	0.50
GAMMA GLUTAMYL TRANSPEPTIDASE (GGT)	IU/l		2.40	2.00
GLUCOSE	mg/dl	113.0	110.8	83.0
PHOSPHORUS	mg/dl		4.74	6.40
TOTAL PROTEIN	g/dl	6.86	6.41	6.50
GLOBULIN *	g/dl	3.26		2.20
ALBUMIN/GLOBULIN*			1.59	2.01
POTASSIUM	meq/l	3.86	3.97	4.80
SODIUM	meq/l	144.1	144.1	140.0
TRIGLYCERIDES	mg/dl		276.2	166.0
UREA NITROGEN (BUN)	mg/dl	18.2	17.4	13.0

* = Calculated values