# Contents

### Chapter 1

Hormonal and Behavioral Rhythms Related to Reproduction *P. Södersten* (With 8 Figures)

	Introduction 1
2	Circadian Rhythms 2
3	Ultradian Rhythms 4
4	Circannual Rhythms 5
5	Rhythms of Gonadotropin Secretion
6	Rhythms in Sexual Behavior 13
7	Summary
Re	ferences

### Chapter 2

Gonadal Steroid Hormone Receptors and Social Behaviors J. D. Blaustein and D. H. Olster (With 18 Figures)

1 Introduction	31
2 Involvement of Steroid Hormone Receptors in Female Sexu	al
Behavior	36
3 Involvement of Steroid Hormone Receptors in Male Sexual	
Behavior	59
4 Sex Differences in Receptors and Adult Sexual Behavior	63
5 Development of Estrogen, Androgen, and Progestin	
Receptors	68
6 Species Comparisons	75
7 Neurotransmitter Regulation of Steroid Hormone Receptors	s 78
8 Other Behaviors	82
9 Alternative Mechanisms of Steroid Hormone Regulation of	
Behavior	84
10 Conclusions	85
References	87

### Chapter 3

Steroid Metabolism and the Activation of Social Behavior J. Balthazart (With 7 Figures)

1	Introduction	105
2	Methods of Study	1 <b>07</b>
3	Metabolic Pathways for Androgens	1 <b>08</b>
4	Control of Male Copulatory Behavior	1 <b>13</b>
5	Control of Other Social Behaviors	120
6	Control of the Activity of Testosterone Metabolizing Enzymes	124
7	Changes in the Activity of T-Metabolizing Enzymes in	
	Relation to Social Behavior	129
8	Conclusions	147
R	eferences	147

### Chapter 4

Neurotransmitter Systems and Social Behavior W.R. Crowley, L.H. O'Connor, and H.H. Feder

1	Colinergic Neural Systems and Social Behavior	162
2	GABAergic Neural Systems and Social Behavior	165
3	Serotonergic Neural Systems and Social Behavior	170
4	Catecholaminergic Neural Systems and Social Behavior	175
5	Neuroendocrine Peptides and Social Behavior	185
R	References	

#### Chapter 5

for Lordosis Behavior	227
References	231

## Chapter 6

Cell Generation, Migration, Death, and Growth in Neural Systems Mediating Social Behavior D.R. Sengelaub (With 9 Figures)

1	Introduction	239
2	Overview of Model Systems	240
3	Cellular Processes which Sculpt Neural Structure	247
4	Conclusion	261
R	eferences	262

### Chapter 7

	heromones: Behavioral and Biochemical Aspects C. Drickamer (With 3 Figures)	
1	Introduction	270
2	Fish (Class Chondrichthyes and Class Osteichthyes)	274
	Amphibians (Class Amphibia)	
	Reptiles (Class Reptilia)	
	Birds (Class Aves)	
	Mammals (Class Mammalia)	
	Conclusions	
	eferences	

Subject Inde	<i>x</i>	349
--------------	----------	-----