

Papers on Brain Mechanisms of Stress – CRF(H) and Urocortin
Review Papers and Research Articles
Spring, 05

Week	Date	Topic	Papers
1	Jan 26	CRF & its receptors	1, 2, 3, 4
2	Feb 2	Urocortin	16, 17, 18, 19
3	Feb 9	CRF & Behavior	21, 22, 23, 24
4	Feb 16	No class	
4	Feb 23	CRF & Physiology	31, 32, 33, 34
5	Mar 2	Original articles	Students pick ¹
6	Mar 9	Original articles	Students pick
7	Mar 16	TTU Spring Break	
8	Mar 23	UIL Spring Break	
9	Mar 30	Original articles	Students pick
10	Apr 6	Original articles	Students pick

¹ Students pick from either the list provided or from the literature within the last 5 years (2000-2005).

*Duplicated because of overlap

CRF SYSTEM and RECEPTORS (REVIEW)

Required Week 1 Papers

1. Bale TL, Vale WW. 2004. CRF and CRF receptors: role in stress responsivity and other behaviors. *Ann Rev Pharmacol Toxicol* 44:525-57.
2. Contarino A, SC Heinrichs, LH Gold. 1999. Understanding corticotrophin releasing factor neurobiology: Contributions from mutant mice. *Neuropeptides* 33(1):1-12.
3. De Kloet ER. 2004. Hormones and the stressed brain. *Ann NY Acad Sci* 1018:1-15.
4. Dunn AJ, AH Swiergeil, V Palamarchouk. 2004. Brain circuits involved in corticotropin-releasing factor–norepinephrine interactions during stress. *Ann NY Acad Sci* 1018:25-34.

Optional papers for “student pick”

5. Aguilera G, M Nikodemova, PC Wynn, KJ Catt. 2004. Corticotropin releasing hormone receptors: two decades later. *Peptides* 25:319-329.
6. Dautzenberg FM, RL Hauger. 2002. The CRF peptide family and their receptors: yet more partners discovered. *Trends in Pharmacol Sci* 23(2):71-77.
7. Grigoriadis DE, GW Dent, JG Turner, H Uno, SE Shelton, EB De Souza, NH Kalin. 1995. Corticotropin-releasing factor (CRF) receptors in infant rhesus monkey brain and pituitary gland: biochemical characterization and autoradiographic localization. *Dev Neurosci* 17(5-6):357-67.
8. Hashimoto K, M Nishiyama, Y Tanaka, T Noguchi, K Asaba, P N Hossein, T Nishioka, S Makino. 2004. Urocortins and corticotrophin releasing factor type 2 receptors in the hypothalamus and the cardiovascular system. *Peptides* 25:1711-1721.
9. Heuser I, C-H Lammers. 2003. Stress and the brain. *Neurobiol Aging* 24:S69-S76.
10. Johnson EO, TC Kamilaris, GP Chrousos, PW Gold. 1992. Mechanism of stress: A dynamic overview of hormonal

and behavioral homeostasis. *Neurosci Biobeh Rev* 16(2):115-130.

11. Koob GF. 1999. Corticotropin-releasing factor, norepinephrine, and stress. *Biol Psychiatry* 46(9):1167-80.
12. *Lehnert H, Schulz C, Dieterich K. 1998. Physiological and neurochemical aspects of corticotropin-releasing factor actions in the brain: the role of the locus coeruleus. *Neurochem Res*. 23(8):1039-52.
13. Perrin MH, Vale WW. 1999. Corticotropin releasing factor receptors and their ligand family. *Ann N Y Acad Sci*. 885:312-28.
14. Smagin GN, AJ Dunn. 2000. The role of CRF receptor subtypes in stress-induced behavioural responses. *E J Pharmacol* 405:199-206.
15. *Takahashi LK. 2001. Role of CRF1 and CRF2 receptors in fear and anxiety. *Neurosci Biobehav Rev* 25:627-636.

UROCORTIN (REVIEW)

Required Week 2 Papers

16. Gysling K, MI Forray, P Haeger, C Daza, R Rojas. 2004. Corticotropin-releasing hormone and urocortin: redundant or distinctive functions? *Brain Res Rev* 47:116-125.
17. Kozicz T, H Yanaihara, A Arimura. 1998. Distribution of urocortin-like immunoreactivity in the central nervous system of the rat. *J Comp Neurol*. 391(1):1-10.
18. Oki Y, H Sasano. 2004. Localization and physiological roles of urocortin. *Peptides* 25:1745-1749.
19. Skelton KH, MJ Owens, CB Nemeroff. 2000. The neurobiology of urocortin. *Regul Peptides* 93(1-3):85-92.

Optional papers for "student pick"

20. *Koob GF, SC Heinrichs. 1999. A role for corticotropin releasing factor and urocortin in behavioral responses to stressors. *Brain Res* 848:141-152.

CRF and BEHAVIOR (REVIEW)

Required Week 3 Papers

21. *Dunn AJ, CW Berridge. 1990. Physiological and behavioral responses to corticotrophin-releasing factor administration: is CRF a mediator of anxiety or stress response? *Brain Res Rev* 15:71-100.
22. *Koob GF, SC Heinrichs. 1999. A role for corticotropin releasing factor and urocortin in behavioral responses to stressors. *Brain Res* 848:141-152.
23. *Spina MG, E Merlo-Pich, Y Akwa, C Balducci, AM Basso, EP Zorrilla, KT Britton, J Rivier, WW Vale, GF Koob. 2002. Time-dependent induction of anxiogenic-like effects after central infusion of urocortin or corticotropin-releasing factor in the rat. *Psychopharmacology (Berl)* 160(2):113-21.
24. *Takahashi LK. 2001. Role of CRF1 and CRF2 receptors in fear and anxiety. *Neurosci Biobehav Rev* 25:627-636.

Optional papers for "student pick"

25. *Contarino A, LH Gold. 2002. Targeted mutations of the corticotrophin-releasing system: effects on physiology and behavior. *Neuropeptides* 36(2-3):103-116.
26. *Francis DD, C Caldji, F Champagne, PM Plotsky, MJ Meaney. 1999. The role of corticotrophin-releasing factor-norepinephrine systems in mediating the effects of early experience on the development of behavioral and endocrine responses to stress. *Biol Psychiatry* 46:1153-1166.
27. Heinrichs SC, GF Koob. 2004. Corticotropin-releasing factor in brain: a role in activation, arousal, and affect regulation. *J Pharmacol Exp Therapeut* 311:427-440.
28. Heinrichs SC, F Menzaghi, E Merlo Pich, KT Britton, GF Koob. 1995. The role of CRF in behavioral aspects of

stress. *Ann NY Acad Sci* 771:92-104

29. Smagin GN, Dunn AJ. 2000. The role of CRF receptor subtypes in stress-induced behavioural responses. *Eur J Pharmacol.* 405(1-3):199-206.
30. Sajdyk TJ, A Shekhar, DR Gehlert. 2004. Interactions between NPY and CRF in the amygdala to regulate emotionality. *Neuropeptides* 38:225-234.

CRF and PHYSIOLOGY (REVIEW)

Required Week 4 Papers

31. Carrasco GA, LD Van de Kar. 2003. Neuroendocrine pharmacology of stress. *Eur J Pharmacol* 463(1-3):235-7.
32. *Contarino A, LH Gold. 2002. Targeted mutations of the corticotrophin-releasing system: effects on physiology and behavior. *Neuropeptides* 36(2-3):103-116.
33. *Francis DD, C Caldji, F Champagne, PM Plotsky, MJ Meaney. 1999. The role of corticotrophin-releasing factor-norepinephrine systems in mediating the effects of early experience on the development of behavioral and endocrine responses to stress. *Biol Psychiatry* 46:1153-1166.
34. *Lehnert H, Schulz C, Dieterich K. 1998. Physiological and neurochemical aspects of corticotropin-releasing factor actions in the brain: the role of the locus coeruleus. *Neurochem Res.* 23(8):1039-52.

Optional papers for "student pick"

35. *Dunn AJ, CW Berridge. 1990. Physiological and behavioral responses to corticotrophin-releasing factor administration: is CRF a mediator of anxiety or stress response? *Brain Res Rev* 15:71-100.

CRF SYSTEM and RECEPTORS (ARTICLES)

Optional papers for "student pick"

36. Vale W, J Spiess, C Rivier, J Rivier. 1981. Characterization of a 41-residue ovine hypothalamic peptide that stimulates secretion of corticotrophin and beta-endorphin. *Science* 213:1394-1397.
37. Bittencourt JC, PE Sawchenko. 2000. Do centrally administered neuropeptides access cognate receptors?: an analysis in the central corticotropin-releasing factor system. *J Neurosci.* 20(3):1142-56.
38. Potter E, DP Behan, EA Linton, PJ Lowry, PE Sawchenko, WW Vale. 1992. The central distribution of a corticotropin-releasing factor (CRF)-binding protein predicts multiple sites and modes of interaction with CRF. *Proc Natl Acad Sci U S A.* 89(9):4192-6.
39. Chen Y, KL Brunson, MB Muller, W Cariaga, TZ Baram. 2000. Immunocytochemical distribution of corticotropin-releasing hormone receptor type-1 (CRF(1))-like immunoreactivity in the mouse brain: light microscopy analysis using an antibody directed against the C-terminus. *J Comp Neurol.* 420(3):305-23.
40. Kostich WA, Grzanna R, Lu NZ, Largent BL. 2004. Immunohistochemical visualization of corticotropin-releasing factor type 1 (CRF1) receptors in monkey brain. *J Comp Neurol* 478(2):111-25.
41. Muller MB et al., 2003. Limbic corticotrophin-releasing hormone receptor 1 mediates anxiety-related behavior and hormonal adaptation to stress. *Nature Neurosci* 6(10):1100-1107.
42. Potter E, Sutton S, Donaldson C, Chen R, Perrin M, Lewis K, Sawchenko PE, Vale W. 1994. Distribution of corticotropin-releasing factor receptor mRNA expression in the rat brain and pituitary. *Proc Natl Acad Sci U S A.* 91(19):8777-81.
43. *Risbrough VB, RL Hauger, AL Roberts, WW Vale, MA Geyer. 2004. Corticotropin-releasing factor receptors CRF1 and CRF2 exert both additive and opposing influences on defensive startle behavior. *J Neurosci* 24(29):6545-6552.

44. *Wang TY, XQ Chen, JZ Du, NY Xu, CB Wei, WW Vale. 2004. Corticotropin-releasing factor receptor type 1 and 2 mRNA expression in the rat anterior pituitary is modulated by intermittent hypoxia, cold restraint. *Neurosci* 128:111-119.
45. Bakshi VP, S Smith-Roe, SM Newman, DE Grigoriadis, NH Kalin. 2002. Reduction of stress-induced behavior by antagonism of corticotrophin-releasing hormone 2 (CRH2) receptors in lateral septum or CRH1 receptors in amygdala. *J Neurosci* 22(7):2926-2935.
46. Chen A, Perrin M, Brar B, Li C, Jamieson P, Digruccio M, Lewis K, Vale W. 2004. Mouse corticotropin releasing factor receptor type 2{alpha} gene: isolation, distribution, pharmacological characterization and regulation by stress and glucocorticoids. *Mol Endocrinol* (Epubd ahead of print)
47. *Pelley munter MA, M Joppa, N Ling, AC Foster. 2002. Pharmacological evidence supporting a role for central corticotrophin-releasing factor2 receptors in behavioral, but not endocrine, response to environmental stress. *J Pharmacol Exp Therapeut* 302:145-152.
48. *Risbrough VB, RL Hauger, AL Roberts, WW Vale, MA Geyer. 2004. Corticotropin-releasing factor receptors CRF1 and CRF2 exert both additive and opposing influences on defensive startle behavior. *J Neurosci* 24(29):6545-6552.
49. *Wang TY, XQ Chen, JZ Du, NY Xu, CB Wei, WW Vale. 2004. Corticotropin-releasing factor receptor type 1 and 2 mRNA expression in the rat anterior pituitary is modulated by intermittent hypoxia, cold restraint. *Neurosci* 128:111-119.

CRF and PHYSIOLOGY (ARTICLES)

Optional papers for "student pick"

50. *Campbell BM, JL Morrison, EL Walker, KM Merchant. 2004. Differential regulation of behavioral, genomic, and neuroendocrine responses by CRF infusions in rats. *Pharmacol Biochemi Behav* 77:447-455.
51. *Johnson RW, EH von Borell, LL Anderson, LD Kojic, JE Cunnick. 1994. Intracerebroventricular injection of corticotrophin-releasing hormone in the pig: acute effects on behavior, adrenocorticotropin secretion, and immune suppression. *Endo* 135(2):642-648.
52. *Salak-Johnson JL, JJ McGlone, CS Whisnant, RL Norman, RR Kraeling. 1997. Intracerebroventricular porcine corticotropin-releasing hormone and cortisol effects on pig immune measures and behavior. *Physiol Beh* 61:15-23.
53. Terawaki K, K Koike, M Yuzurihara, K Kurauchi, A Ishige, H Sasaki, K Murakami, M Inoue. 2001. An inhibitory effect of cytokine-induced neutrophil chemoattractant on corticotrophin-releasing factor-induced increase in locomotor activity. *Brain Res* 917:133-137.

CRF and BEHAVIOR (ARTICLES)

Optional papers for "student pick"

54. *Campbell BM, JL Morrison, EL Walker, KM Merchant. 2004. Differential regulation of behavioral, genomic, and neuroendocrine responses by CRF infusions in rats. *Pharmacol Biochemi Behav* 77:447-455.
55. Dirks A, EW Fish, T Kikusui, J van der Gugte, L Groenink, E Olivier, KA Miczek. 2002. Effects of corticotrophin-releasing hormone on distress vocalizations and locomotion in maternally separated mouse pups. *Pharmacol Biochem Behav* 72:993-999.
56. Dunn AJ, AH Swiergiel. 1999. Behavioral responses to stress are intact in CRF-deficient mice. *Brain Res* 845:14-20.
57. *Johnson RW, EH von Borell, LL Anderson, LD Kojic, JE Cunnick. 1994. Intracerebroventricular injection of corticotrophin-releasing hormone in the pig: acute effects on behavior, adrenocorticotropin secretion, and immune suppression. *Endo* 135(2):642-648.
58. Jones JNC, R Kortekaas, PD Slade, DN Middlemiss, JJ Hagan. 1998. The behavioral effects of corticotrophin-releasing factor-related peptides in rats. *Psychopharmacol* 138:124-132.
59. Kalin NH, SE Shelton, RJ Davidson. 2004. The role of the central nucleus of the amygdala in mediating fear and anxiety in the primate. *J Neurosci* 24(24):5506-5515.

60. *Pelley mounter MA, M Joppa, N Ling, AC Foster. 2002. Pharmacological evidence supporting a role for central corticotrophin-releasing factor2 receptors in behavioral, but not endocrine, response to environmental stress. *J Pharmacol Exp Therapeut* 302:145-152.
61. Pelley mounter MA, M Joppa, N Ling, AC Foster. 2004. Behavioral and neuroendocrine effects of the selective CRF2 receptor agonists urocortin II and urocortin III. *Peptides* 25:659-666.
62. *Risbrough VB, RL Hauger, AL Roberts, WW Vale, MA Geyer. 2004. Corticotropin-releasing factor receptors CRF1 and CRF2 exert both additive and opposing influences on defensive startle behavior. *J Neurosci* 24(29):6545-6552.
63. Salak-Johnson JL, DL Anderson, JJ McGlone. 2004. Differential dose effects of central CRF and effects of CRF astressin on pig behavior. *Physiol Beh* 83:143-150.
64. *Salak-Johnson JL, JJ McGlone, CS Whisnant, RL Norman, RR Kraeling. 1997. Intracerebroventricular porcine corticotropin-releasing hormone and cortisol effects on pig immune measures and behavior. *Physiol Beh* 61:15-23.
65. Jasnow AM, M Davis, KL Huhman. 2004. Involvement of central amygdalar and bed nucleus of the stria terminalis corticotrophin-releasing factor in behavioral responses to social defeat. *Behav Neurosci* 118(5):1052-1061.
66. *Zhang R, T Tachibana, T Takagi, T Koutoku, DM Denbow, M Furuse. 2003. Centrally administered norepinephrine modifies the behavior induced by corticotrophin-releasing factor in neonatal chicks. *J Neurosci Res* 74:630-636.

OTHER POTENTIAL MEDIATORS of STRESS or INTERACTIONS with CRF

Optional papers for “student pick”

67. Francis DD, C Caldji, F Champagne, PM Plotsky, MJ Meaney. 1999. The role of corticotropin-releasing factor —norepinephrine systems in mediating the effects of early experience on the development of behavioral and endocrine responses to stress. *Biol Psychiatry* 46(9):1153-66.
68. Gaszner B, Csernus V, Kozicz T. 2004. Urocortinergic neurons respond in a differentiated manner to various acute stressors in the Edinger-Westphal nucleus in the rat.
69. Latchman DS. 2002. Urocortin. *Int J Biochem Cell Biol* 34(8):907-10.
70. Rivier J, Vale WW, Sawchenko PE. 2001. Urocortin II: a member of the corticotropin-releasing factor (CRF)
71. *Spina MG, Merlo-Pich E, Akwa Y, Balducci C, Basso AM, Zorrilla EP, Britton KT, Rivier J, Vale WW, Koob GF. 2002. Time-dependent induction of anxiogenic-like effects after central infusion of urocortin or corticotropin-releasing factor in the rat. *Psychopharmacology (Berl)* 160(2):113-21.
72. *Zhang R, T Tachibana, T Takagi, T Koutoku, DM Denbow, M Furuse. 2003. Centrally administered norepinephrine modifies the behavior induced by corticotrophin-releasing factor in neonatal chicks. *J Neurosci Res* 74:630-636.