

Chapter 7

Calcitonin Gene-Related Peptide (CGRP), a New Endocrine Factor Involved in the Complex Multi-hormonal Control of the Gill Osmoregulation: Evidence from Studies in the European Eel, *Anguilla anguilla*

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7.1 Introduction

7.1.1 *The CT/CGRP Peptide Family in Vertebrates*

7.1.1.1 Situation in Mammals

In mammals, alternative tissue-specific processing of initial mRNA from the calcitonin gene generates two distinct peptides: calcitonin (CT) in the thyroid C cells and calcitonin gene-related peptide (CGRP) in the peripheral and central nerves (Copp et al. 1962; Amara et al. 1982). In this group, CT plays an endocrine role in the control of calcium metabolism, as a hypocalcaemic and hypophosphataemic hormone (Azria 1989). At high doses, CGRP has the same calciotropic actions as CT, which likely result from interaction with CT receptor (Raynaud et al. 1994; Cornish et al. 2001). In mammals, the major localization of CGRP is in the central and peripheral nervous system (Amara et al. 1985; Lee et al. 1985; Skofitsch and Jacobowitz 1985). Its wide distribution in the brain suggests a neuromediator or neuromodulator function and an involvement in various brain functions (Van Rossum et al. 1997; Wimalawansa 1996, 1997). CGRP is also involved in the control of cardiovascular functions by acting locally as a hypotensive factor on heart and blood vessels (Gennari and Fischer 1985; Tippins 1986) and in the local control of digestive functions by inhibiting gastric acid secretion (Gennari and Fischer 1985; Taché et al. 1984).

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