

# Corticotropin-releasing hormone

see also [Corticotropin releasing hormone receptor 1](#)

**Corticotropin**-releasing hormone (CRH) also known as **corticotropin releasing factor** (CRF) or corticoliberin is a **peptide hormone** and neurotransmitter involved in the stress response. It is a releasing hormone that belongs to corticotropin-releasing factor family. In humans, it is encoded by the CRH gene.

Its main function is the stimulation of the pituitary synthesis of **ACTH**, as part of the HPA Axis.

Corticotropin-releasing hormone (CRH) is a 41-amino acid peptide derived from a 196-amino acid prohormone. CRH is secreted by the **paraventricular nucleus** (PVN) of the **hypothalamus** in response to stress.

Increased CRH production has been observed to be associated with **Alzheimer disease** and major depression, and autosomal recessive hypothalamic corticotropin deficiency has multiple and potentially fatal metabolic consequences including **hypoglycemia**.

In addition to being produced in the hypothalamus, CRH is also synthesized in peripheral tissues, such as T lymphocytes, and is highly expressed in the placenta. In the placenta, CRH is a marker that determines the length of gestation and the timing of parturition and delivery. A rapid increase in circulating levels of CRH occurs at the onset of parturition, suggesting that, in addition to its metabolic functions, CRH may act as a trigger for parturition.

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Bilateral **inferior petrosal sinus** sampling (BIPSS) is considered the gold standard test for anatomical localization for **Cushing's disease** where radiology has been inconclusive <sup>1)</sup>.

In a **metaanalysis** of 21 studies, the overall **sensitivity** and **specificity** of BIPSS were found to be 96% and 100% respectively <sup>2)</sup>.

Anatomical localization of **pituitary neuroendocrine tumor** can be challenging in **adrenocorticotrophic hormone** (ACTH)-dependent **Cushing's syndrome**, and bilateral inferior petrosal sinus sampling (BIPSS) is considered gold standard in this regard. Stimulation using **corticotropin releasing hormone** (CRH) improves the sensitivity of BIPSS.

## Corticotropin-releasing hormone stimulation test

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<sup>1)</sup>

Lad SP, Patil CG, Laws ER Jr, Katznelson L. The role of inferior petrosal sinus sampling in the diagnostic localization of Cushing's disease. *Neurosurg Focus*. 2007;23:E2.

<sup>2)</sup>

Newell-Price J, Trainer P, Besser M, Grossman A. The diagnosis and differential diagnosis of Cushing's syndrome and pseudo-Cushing's states. *Endocr Rev*. 1998;19:647-72.

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