Trh (Thyrotropin-Releasing Hormone) Encyclopedia Article

Trh (Thyrotropin-Releasing Hormone)

The following sections of this BookRags Literature Study Guide is offprint from Gale's For Students Series: Presenting Analysis, Context, and Criticism on Commonly Studied Works: Introduction, Author Biography, Plot Summary, Characters, Themes, Style, Historical Context, Critical Overview, Criticism and Critical Essays, Media Adaptations, Topics for Further Study, Compare & Contrast, What Do I Read Next?, For Further Study, and Sources.

(c)1998-2002; (c)2002 by Gale. Gale is an imprint of The Gale Group, Inc., a division of Thomson Learning, Inc. Gale and Design and Thomson Learning are trademarks used herein under license.

The following sections, if they exist, are offprint from Beacham's Encyclopedia of Popular Fiction: "Social Concerns", "Thematic Overview", "Techniques", "Literary Precedents", "Key Questions", "Related Titles", "Adaptations", "Related Web Sites". (c)1994-2005, by Walton Beacham.

The following sections, if they exist, are offprint from Beacham's Guide to Literature for Young Adults: "About the Author", "Overview", "Setting", "Literary Qualities", "Social Sensitivity", "Topics for Discussion", "Ideas for Reports and Papers". (c)1994-2005, by Walton Beacham.

All other sections in this Literature Study Guide are owned and copyrighted by BookRags, Inc.

Contents

Trh (Thyrotropin-Releasing Hormone) Encyclopedia Article.....1

Contents.....2

Trh (Thyrotropin-Releasing Hormone).....3

Trh (Thyrotropin-Releasing Hormone)

Thyrotropin-releasing hormone (TRH), produced by the portion of the brain called the hypothalamus, is the first in the series of hormones that stimulates the thyroid gland to produce thyroxine, which is used by the body to promote protein synthesis and growth. In 1968, TRH was the first hypothalamic hormone to be isolated, sequenced, and synthesized, by the American endocrinologists Roger Guillemin and Andrew Victor Schally. For their work on this and other hormones, they received part of the 1977 Nobel Prize in physiology or medicine.

As part of the body's feedback system, a low level of thyroxine in the blood signals the hypothalamus to produce TRH. This is transported to the anterior lobe of the pituitary gland (an older name is hypophysis), which then produces thyroid-stimulating hormone (TSH, or thyrotropin), a glycoprotein. TSH is then transported to the thyroid gland, which produces thyroxine (also called T4) and another hormone, triiodothyronine (T3).

In the 1950s British anatomist Geoffrey Harris proposed that the hypothalamus secretes hormones that control the pituitary gland. In 1962, Guillemin isolated a substance in brain material that controlled thyroid functions. In 1968, he and Schally purified the substance. It had taken them ten years to turn more than 5 million sheep and hog brains--50 tons of hypothalamus tissue--into a 1 milliliter sample. A year later, they established the three-amino acid primary structure of this polypeptide hormone, glutamic acid-histidine-proline--a structure that Guillemin called deceivingly simple. The synthesized form of TRH was found to be active in all species of vertebrates, and soon was utilized to diagnose tumors of the pituitary gland and to measure pituitary function.