HCG
Research Applications

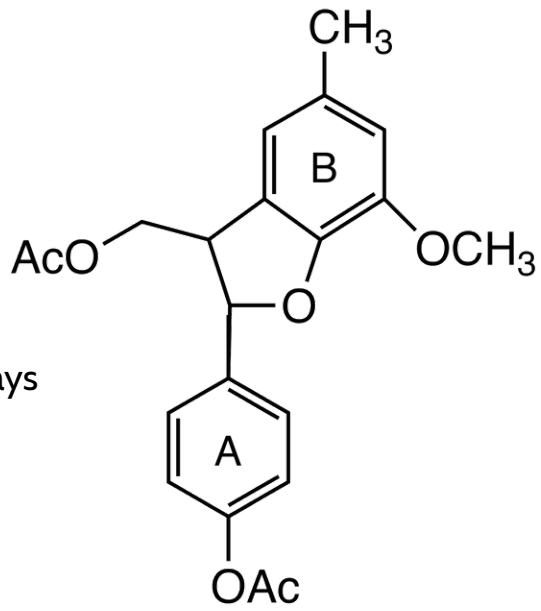
US Peptide Co

Mechanism of Action

Human Chorionic Gonadotropin (HCG) is a glycoprotein hormone composed of an alpha subunit shared with LH, FSH, and TSH, plus a unique beta subunit. In research models, HCG binds to the luteinizing hormone receptor (LHR), activating adenylyl cyclase and increasing intracellular cAMP. This initiates signaling cascades that regulate steroidogenesis, making it valuable for studying reproductive endocrinology and cellular development pathways.

Molecular Profile

- Chemical Formula: $C_{1105}H_{1770}N_{318}O_{336}S_{26}$
- Molecular Weight: ~36,700 Da
- Structure: Alpha subunit and beta subunit



Laboratory Considerations

- Store lyophilized powder at -20°C
- Once reconstituted, store at 2-8°C and use within 10 days
- Avoid repeated freeze-thaw cycles

Research Applications

- Reproductive endocrinology research models
- Investigation of gonadotropin receptor signaling pathways
- Studies on steroidogenesis and hormone production mechanisms
- Research on cellular development in reproductive tissues

References

1. Choi J, et al. Human chorionic gonadotropin and its free β-subunit stimulate trophoblast invasion independent of LH/hCG receptor. Endocrinology. 2011;152(11):4368-4379.
2. Cole LA. Biological functions of hCG and hCG-related molecules. Reprod Biol Endocrinol. 2010;8:102.
3. Berndt S, et al. Angiogenic activity of human chorionic gonadotropin through LH receptor activation on endothelial and epithelial cells of the endometrium. FASEB J. 2006;20(14):2489-2498.
4. Rao CV, et al. Novel role of human chorionic gonadotropin in differentiation of human cytotrophoblasts. Endocrinology. 1995;136(8):3452-3459.