

Lead Inventors

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Unmet Need

Human growth hormone (hGH), also known as somatotropin or somatropin, is a peptide hormone that stimulates growth and differentiation of target tissues. Exogenously administered hGH can be an effective treatment for growth disorders in both children and adults. It also is useful in treating catabolic disorders such as muscle wasting associated with acquired immunodeficiency syndrome (AIDS). hGH affects a range of tissues, including smooth and cardiac muscle, bone, cartilage and liver. hGH also may provide clinical benefit for broader range of disorders including cardiovascular disease, neurological injuries, cerebral palsy, and wound healing.

However, delivery of hGH is challenging. hGH does not withstand the acid environment of the stomach and is typically administered by injection. Moreover, because hGH has a half-life of ~fifteen minutes in the bloodstream, injections must be given daily. These delivery issues can lead to poor compliance and inadequate clinical outcomes.

There is a continuing need for delivery systems that optimize hGH dosage and maximize patient compliance.

Opportunity

Superior methods of treating patients who have a growth disorder, and more particularly methods of making and using polypeptides derived from growth hormone-binding protein to deliver growth hormone to a patient.

Unique Attributes

- Conjugated growth hormone is more stable than internal natural growth hormone.
- Conjugation of growth hormone prolongs biological half-life in vivo.
- Growth hormone binding protein can be conjugated to polymers to develop drug delivery devices.

Clinical Applications

- Delivery of growth hormone in a manner to optimize dosage and increase patient compliance.
- Anti-aging cosmetic applications.

Stage of Development

Preclinical early studies.

Intellectual Property

US Patent No. 10,383,919.

References and Publications

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- Fisker, S., Physiology and pathophysiology of growth hormone-binding protein: methodological and clinical aspects. Growth hormone & IGF research: official journal of the Growth Hormone Research Society and the International IGF Research Society 2006, 16 (1), 1-28.
- Wilson, T. A.; Rose, S. R.; Cohen, P.; Rogol, A. D.; Backeljauw, P.; Brown, R.; Hardin, D. S.; Kemp, S. F.; Lawson, M.; Radovick, S.; Rosenthal, S. M.; Silverman, L.; Speiser, P., Update of guidelines for the use of growth hormone in children: the Lawson Wilkins Pediatric Endocrinology Society Drug and Therapeutics Committee. The Journal of pediatrics 2003, 143 (4), 415-21.
- <https://www.norditropin.com/what-it-is/how-it-works>.
- <http://www.omnitrope.com/>.
- <https://www.genotropin.com/>.

Licensing Opportunity

Actively seeking licensee for commercialization or collaboration to complete preclinical studies.

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