Docket #: S10-337

Potent MET receptor agonists and antagonists

Stanford Reference: Dockets S10-337 *and* S10-337B:

Researchers in the Cochran lab have engineered MET receptor (HGFR) agonists with enhanced stability, ease of production and comparable agonistic activity to wild type HGF. Various groups have demonstrated that MET agonism has therapeutic effects in neurodegenerative diseases such as Alzheimer's and ALS, in stroke, in myocardial infarction, and in pulmonary fibrosis.

Ongoing Research
The inventors are exploring the therapeutic efficacy of this protein in various animal disease models, including models of myocardial infarction.

Applications

- **Therapeutic** for:
  - Neurodegenerative diseases
  - Myocardial infarction
  - Stroke
  - Pulmonary Fibrosis
- **Stem cell and tissue engineering**

Advantages

- **Potent** - agonistic activity similar to full-length HGF
- **Stable**
- **High recombinant yield** in yeast
- Can **incorporate into biomaterials** using a heparin-binding epitope

Publications

- Suarez SL, Munoz A, Mitchell AC, Braden RL, Luo C, Cochran JR, Almutairi A, Christman KL, Degradable Acetalated Dextran Microparticles for Tunable Release of an Engineered Hepatocyte Growth Factor Fragment,ACS Biomater. Sci. Eng., 2016, 2 (2), pp 197–204.
- Sonnenberg SB, Rane AA, Liu CJ, Rao N, Agmon G, Suarez S, Wang R, Munoz A, Bajaj V, Zhang S, Braden R, Schup-Magoffin PJ, Kwan OL, DeMaria AN, Cochran JR, Christman KL, Delivery of an engineered HGF fragment in an extracellular matrix-derived hydrogel prevents negative LV remodeling post-myocardial infarction, Biomaterials, 2015 March, Vol. 45, pp 56-63.
- Liu CJ, Jones DS 2nd, Tsai PC, Venkataramana A, Cochran JR An engineered dimeric fragment of hepatocyte growth factor is a potent c-MET agonist, FEBS Letters, 2014 Dec 20; Vol. 588, Issue 24, pp 4831-4837.
- Jones DS 2nd, Tsai PC, Cochran JR, Engineering hepatocyte growth factor fragments with high stability and activity as Met receptor agonists and antagonists, PNAS, 2011 Aug 9;108(32):13035-40.
- patent application PCT/US2011/029271: Hepatocyte Growth Factor Fragments That Function As Potent Met Receptor Agonists And Antagonists

Patents

- Published Application: WO2011116396
- Published Application: 20130171068
- Published Application: 20170305985
- Published Application: 20220033453
- Issued: 9,556,248 (USA)

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