Docket #: S15-356

Novel systems for inhibiting Neuromedin signaling in vivo

Stanford researchers have proposed antibody-based reduction of Neuromedin (NMU) signaling as a therapeutic strategy to improve glucose metabolism in multiple physiological or disease states, including obesity, diabetes, and cancer where NMU levels are elevated. These antibodies are suitable for reducing levels of the hormone NMU in serum or other fluids in humans, thereby inhibiting NMU signaling at key target organs including the pancreas and gastrointestinal tract. These antibodies are monoclonal and produced from hybridoma cell lines with CDR sequence. A related invention, Stanford docket S15-019 uses these antibodies as the basis of a unique enzyme linked immunosorption assay (ELISA). This ELISA can stratify and identify broad subsets of patients with excessive NMU signaling that may benefit from NMU antibody-based therapies.

Applications

- **Human antibodies for therapeutics** for patients with obesity, pancreatitis, diabetes, cancer or any disease state with excessive systemic NMU signaling
- **Mouse and human antibodies for research**

Advantages

- Novel
  - No current disclosed antibodies that can inhibit NMU *in vivo*
  - No disclosed ELISA that can perform risk stratification of subjects who may benefit from anti-NMU approaches with antibodies
- Low cost
- Easy to use via simple injectable
- High scalability/ reproducibility

- Can be readily adapted for use in humans or mice

Publications

- Alfa, R.W., Park, S., Skelly, K.R., Poffenberger, G., Jain, N., Gu, X., Kockel, L., Wang, J., Liu, Y., Powers, A.C. and Kim, S.K., 2015. Suppression of insulin production and secretion by a decretin hormone. *Cell metabolism,* 21(2), pp.323-333.
- Lee et al. Reconstituting development of pancreatic intraepithelial neoplasia from primary human pancreas duct cells. *Nature Communications*. Article number: 14686 (2017).

Patents

- Published Application: 20170218064
- Published Application: 20190218286
- Issued: 10,294,297 (USA)
- Issued: 10,822,409 (USA)

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