

# North East Scotland Masters Training Programme (NES MTP) in Cardiovascular and Diabetes Medicine

## Project Proposal

**Project Title:**

Role of hyaluronan receptor, RHAMM in metabolic regulation in obesity

**Primary supervisor: Dr Li Kang**

**Email:** [l.kang@dundee.ac.uk](mailto:l.kang@dundee.ac.uk)

**Website:** <https://discovery.dundee.ac.uk/en/persons/li-kang>

**Secondary supervisor: Prof Graeme Nixon**

**Other supervisors:**

**Brief outline of the project/techniques:**

1. Obesity-associated insulin resistance is linked to increased deposition of extracellular matrix (ECM) components, such as collagens and hyaluronan in adipose tissue.
2. The ECM activates membrane receptor signalling, which has been implicated in insulin resistance and inflammation in obesity.
3. Using the state-of-the-art mouse transgenesis and in vivo mouse metabolic phenotyping techniques, this project will investigate the role of hyaluronan receptor, RHAMM in metabolic regulation during obesity.

**Key references (Maximum 3):**

1. Bugler-Lamb AR, Hasib A, Weng X, Hennayake CK, Lin C, McCrimmon RJ, Stimson RH, Ashford MLJ, Wasserman DH, **Kang L**. Adipocyte integrin-linked kinase plays a key role in the development of diet-induced adipose insulin resistance in male mice. *Mol Metab* 2021; 49:101197
2. Weng X, Lin D, Huang JTJ, Stimson RH, Wasserman DH, **Kang L**. Collagen 24 $\alpha$ 1 is increased in insulin-resistant skeletal muscle and adipose tissue. *Int J Mol Sci* 2020; 21(16):E5738
3. Hasib A, Hennayake CK, Bracy DP, Bugler-Lamb AR, Lantier L, Khan F, Ashford MLJ, McCrimmon RJ, Wasserman DH, **Kang L**. CD44 contributes to high-fat diet induced insulin resistance in skeletal muscle of C57BL/6 mice. *Am J Physiol Endocrinol Metab* 2019; 317(6):E973-E983