



Technology Offer

Newly identified subpopulation of NK cells with the promise to treat obesity and insulin resistance

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An new approach for treatment of obesity and insulin resistance, that relies on selective ablation of a unique, previously uncharacterized subpopulation of myeloid NK cells.

Background

Immune cells reside in organs under physiological conditions and serve as important regulators of tissue homeostasis and metabolism in lean individuals. On the other hand, coupled to overnutrition and a sedentary lifestyle, these give rise to chronic, low-grade tissue inflammation (metaflammation), which contributes to the development of obesity, type 2 diabetes, dyslipidemia and atherosclerosis.

The cellular network of metaflammation is complex and not completely understood. Although studies in obese mouse models have recently revealed the general importance of NK cells for metaflammation, the details remained unclear.

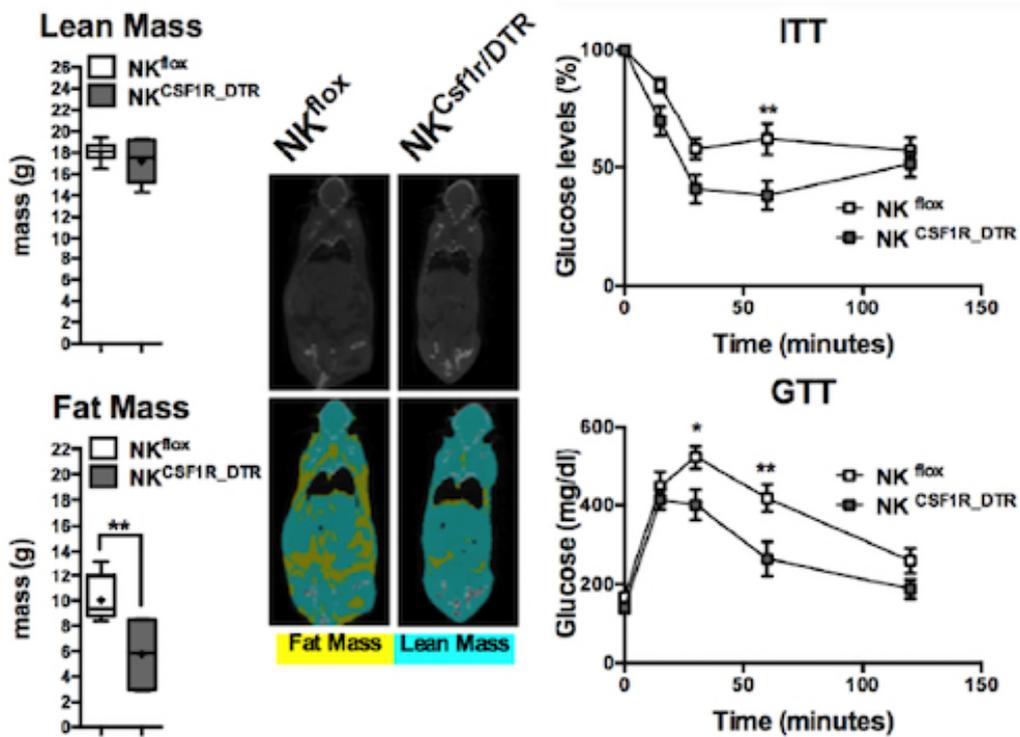
Technology

Our scientists have identified a unique, previously uncharacterized subpopulation of myeloid NK cells in obese mice and humans, whose selective ablation in mice prevents obesity and insulin resistance upon high-fat diet feeding.

They have also identified IL6/Stat3 signaling as a critical determinant for formation and recruitment of this specific sub-population, and in the establishment of obesity and the associated insulin resistance.

Moreover, a number of genes that are uniquely upregulated in this subpopulation has been identified. This opens the door for selective immunotherapeutic targeting as a treatment option in humans, by either targeting one of these markers or in a combinatory approach by targeting NK cell marker and a myeloid marker.

We are now looking for either a licensing partner, or a collaboration partner to further develop this project.



Left: NK^{CSF1R_DTR} refer to those mice with depleted myeloid NK cells. Right: ITT and GTT refer to insulin and glucose tolerance tests, respectively.

Patent Information

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