

Patrolling Monocytes Control Tumor Metastasis to the Lung

Researchers at the La Jolla Institute for Immunology have identified the orphan nuclear receptor NR4A1 (Nur77) as a master regulator for the differentiation and survival of patrolling Ly6C monocytes. These patrolling monocytes function to engulf tumor material and recruit and activate NK cells, together which lead to the prevention of tumor cell metastasis in the lung.

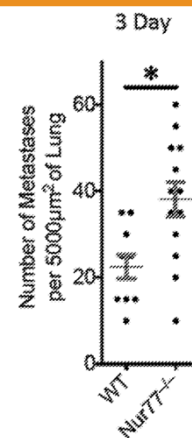
Patrolling monocytes are involved in the resolution of inflammation and exhibit unique properties such as actively patrolling the vasculature and acting as “intravascular housekeepers” that scavenge microparticles and remove cellular debris. Patrolling monocytes are enriched in the microvasculature of the lung and are important in preventing initial tumor metastasis to the lung. They establish early interactions with tumor cells and specifically remove tumor material from the lung vasculature in a CX3CR1-dependent manner.

As such, researchers at LJI have identified Nur77 as a master regulator for the differentiation and survival of patrolling monocytes. Targeting these patrolling monocytes’ antitumoral immunosurveillance activities and their regulation by Nur77 represents a novel therapy for preventing cancer metastasis to the lung. The researchers believe that, by administering a population of these patrolling monocytes to a patient, metastasis of a tumor or other cancer could be controlled, limited, or even decreased.

ADVANTAGES:

- Identifies a master regulator of patrolling monocytes
- Administration of these patrolling monocytes could control, limit, or even decrease tumor metastasis

Nur77 is a Master Regulator of Patrolling Monocytes that Control Tumor Metastasis to the Lung



Increased lung metastasis and growth of Lewis Lung Carcinoma (LLC) in Nur77^{-/-} mice