Combination of IFN\(\gamma\) and TLR2/6 agonists for the treatment of melanoma

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Melanoma

- Melanoma is a malignant tumor originating in the melanin-forming cells
- The American Cancer Society estimates more than 91,000 new cases of melanoma in 2018
- $900 million spent annually melanoma treatment

Clinical Problem:
- 5-year survival rate for metastasized melanoma is 18%
- Treatment mainly consists of surgical resection and radiation; targeted therapies are used for later stage Immunotherapies such as checkpoint inhibitors available, but frequently have severe side effects

Types of Skin Cancer

http://aadpathology.com/mohs/
Dual Treatment: TLR2/6 Agonist and IFNγ

Solution: Researchers at the University of Virginia have identified that use of a combinatorial treatment of melanoma cells with TLR2/6 agonist and IFNγ increases cellular production of the chemokine CXCL10, a T-cell attractant.

- TLR2/6 agonist and IFNγ synergize to induce melanoma cell production of CXCL10, which in turn promotes the migration of T-cells
- Treatment does not increase proliferation or inhibit apoptosis

Adapted from: https://mts.intechopen.com/books/research-on-melanoma-a-glimpse-into-current-directions-and-future-trends
CXCL10 Upregulation with Dual Treatment of TLR2/6 Agonist and IFN$_\gamma$

Melanoma cell lines increase production of CXCL10 after treatment with both a TLR2/6 agonist (MALP-2 or FSL-1) and IFN$_\gamma$ in comparison to either treatment alone.
Relevant Publications

Intellectual Property

• UVA Tech ID: SLINGLUFF-TLRAG
  – Title: Compositions and methods for treating melanoma