"NEW THERAPEUTIC AGENT PROMOTING IMMUNE TOLERANCE AND MITIGATING IMMUNE-MEDIATED TISSUE INJURY" VCU #12-062

Applications

- Hepatitis B (HBV)
- Autoimmune diseases
- Infections
- Organ transplant
- Allergies

Advantages

- New target
- Diagnostic potential
- Direct inhibition of T cells activation
- No interaction with other medications

Inventors

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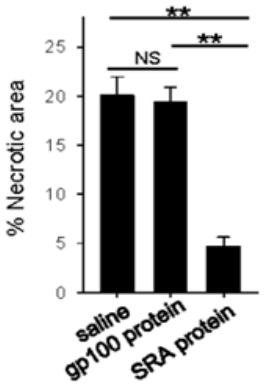
Market Need

Immune-mediated tissue injury represents a complex and diverse group of disorders where immune mechanisms are responsible for tissue damage. These reactions are relevant to many pathological conditions: allergic diseases, autoimmune diseases, transplant rejection, chronic inflammatory disorders, infectious diseases, and some forms of shock. Currently available immunosuppressive therapeutics not only cause side effects, but also interact with other medicines and affect their metabolism and action. This opens the door for development of novel and direct-acting therapeutic agents.

Technology Summary

Dr. Wang has discovered a novel role for Scavenger Receptor A (SRA) protein as an inhibitor of T cells activation. Excessive activation of T cells and increased Interferon gamma (IFNγ) production, caused by autoimmune diseases, Hepatitis B or organ transplantation can cause severe tissue damage. Administration of either recombinant SRA protein or SRA-encoding genetic constructs inhibits T cells activation and can potentially prevent this damage. *In vitro* and *in vivo* studies using animal hepatitis model have shown that SRA serves as a negative feedback mechanism in liver immune homeostasis and that it can be potentially used as a treatment for inflammatory liver diseases (Fig). Furthermore, the levels of soluble, circulating SRA may be used as a potential biomarker to predict or monitor the tissue injury or host response upon pathogen infection.



Technology Status

Patent pending: U.S. and foreign rights are available.

In vitro and *in vivo* studies demonstrated the effectiveness of SRA in regulation of liver injury (hepatitis model).

This technology is available for licensing to industry for further development and commercialization.