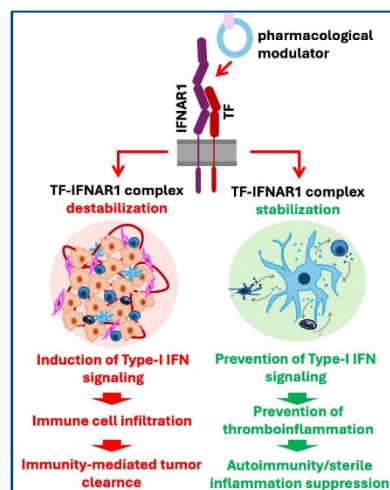


## Modulation of Immune Response via Tissue Factor CD142

Cardiometabolic diseases, Autoimmune diseases, Cancer, Immunosuppression, TF, F3, CD142, interferon alpha receptor 1, Therapy, Diagnosis, IFNAR1

### DESCRIPTION OF TECHNOLOGY

Immuno-suppression in tumor (immune escape) or immuno-activation in sterile inflammation (autoimmune diseases, cardiometabolic diseases) or infection (Covid-19) lack a unifying mechanism of action. The recently discovered effect that tissue factor („TF“, also called „F3“ or „CD142“) is modulating the interferon response by inhibiting interferon-alpha receptor-1 (IFNAR1) now provides a new way for modulating (enhancing or reducing!) the immune response of cells in case of several types of illnesses. In addition to it, inhibition of infection/inflammation driven TF-mediated coagulopathy can be achieved.



© Jayakumar Manoharan,  
Universität Leipzig

### APPLICATION FIELDS

The broad involvement of interferons with numerous types of illnesses allows the therapeutic usage of the newly discovered way of modulating the immune response in case of many illnesses, especially with respect to cardiometabolic diseases, autoimmune diseases, sepsis, viral infection, and cancer.

### AT A GLANCE ...

#### Application Fields

- Cardiometabolic diseases
- Autoimmune diseases
- Cancer
- Sepsis
- Viral infection
- Kidney diseases
- Coagulopathy

#### Business

- Pharmacy
- Medical research
- Diagnosis

#### USP

- Simultaneous targeting infection and coagulopathy
- Modulating the immune response positively or negatively
- May also be applied for diagnostic purposes

#### Development Status

- The Signaling pathway is identified and proven.
- Developing suitable API's has already been commenced.

#### Patent Status

Priority application no. EP23218581.9 was filed on Dec. 20<sup>th</sup> 2023 at the European Patent Office.

Additionally to the therapeutic usage, diagnostic applications may also be developed, based upon the effect of the found TF/IFNAR1-interaction.

### ADVANTAGES OVER THE PRIOR ART

Applying the newly found interaction pathway between TF and IFNAR1 is possible for therapeutic purposes as well as for diagnostic purposes. Because it is an interaction pathway, unknown heretofore, it can open the way to new (alternative) methods for therapy and diagnosis of cardiometabolic diseases, immune diseases and cancer.

### STATE OF THE PRODUCT DEVELOPMENT

Currently the invention resides on an early stage of development, but further development, being aimed at the development, synthesis and testing of active pharmaceutical ingredients („APIs“) for making use of the discovered effect is already under way. Development partners are therefore especially welcome for intense joint cooperation.

### MARKET POTENTIAL

The study “High and Rising Mortality Rates Among Working-Age Adults” in U.S. shows that, collectively, cardiometabolic diseases were responsible for more than 4.8 million deaths among the U.S. working-age (ages 25–64) population between 1990 and 2017. The contribution of cardiometabolic mortality to the rise in all-cause working-age mortality is considered to be due to the net increases in mortality from cardiometabolic diseases after 2010.<sup>1</sup>

Prevalence (case numbers) of all these diseases is expected to be further increasing worldwide<sup>2</sup>, showing that there is existing a huge market potential on global scale.

### COOPERATION OPPORTUNITIES

On behalf of Universität Leipzig, TransMIT GmbH is looking for cooperation partners for further development or licensees in Germany, Europe, US and Asia.

<sup>1</sup> Cf. <https://www.ncbi.nlm.nih.gov/books/NBK571925/>, viewed on Mar. 18<sup>th</sup> 2024.

<sup>2</sup> Cf. <https://pubmed.ncbi.nlm.nih.gov/37572826/>,  
[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(23\)01301-6/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(23)01301-6/fulltext) and  
<https://acsjournals.onlinelibrary.wiley.com/doi/10.3322/caac.21660>,  
all viewed on Jan. 11<sup>th</sup> 2024.

### A TECHNOLOGY OF



UNIVERSITÄT  
LEIPZIG

### Contact

TransMIT Gesellschaft  
für Technologietransfer mbH  
Kerkrader Straße 3  
35394 Gießen  
GERMANY  
[www.transmit.de](http://www.transmit.de)

### Contact Person

Dr. Andreas Fuß  
Tel: +49 (0) 641 9 43 64 58  
Fax: +49 (0) 641 9 43 64 55  
E-Mail: [andreas.fuss@transmit.de](mailto:andreas.fuss@transmit.de)

