Washington University in St. Louis
Office of Technology Management

DEVELOPMENT OF CD163 TARGETING AGENT FOR IMAGING AND THERAPY

Heo, Gyu Seong, Liu, Yongjian, Zhang, Xiuli

Gill, John

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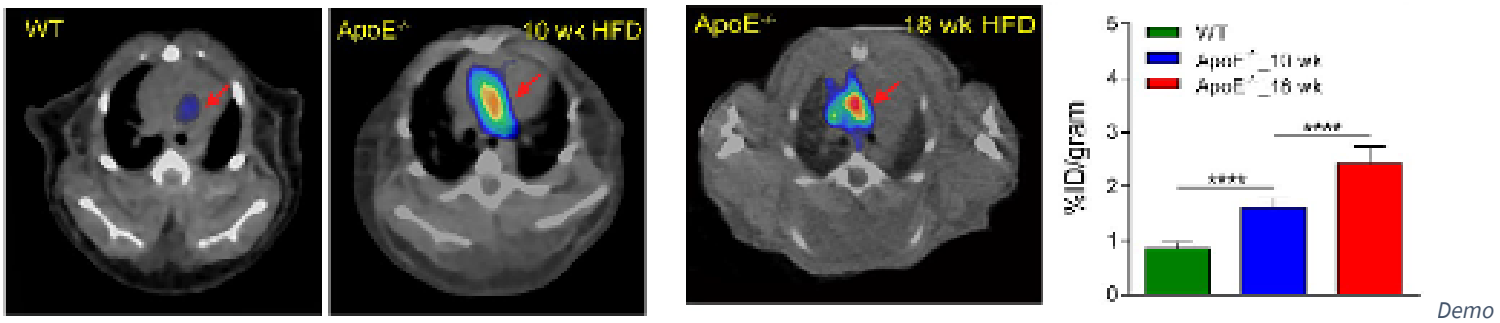
T-020196 CD163 Targeting Agent for Imaging and Therapy

Technology Description

Researchers in Yongjian Liu's laboratory at Washington University have synthesized a new peptide-based CD163 radiotracer. CD163 is a well-known biomarker specific to macrophages implicated in multiple diseases, but no suitable PET tracer has been developed to date.

The radiotracer has IC_{50} values in low nanomolar ranges based on *in vitro* assays of cells over-expressing CD163. *In vivo* pharmacokinetics indicate that the tracer showed effective renal clearance and low retention in most organs, with blood pool organs (blood, heart, lung) having less than 0.5% ID/gram retention at 1h post injection and less than 2% ID/gram for the liver at all times.



Demonstration of the CD163 tracer in an atherosclerosis mouse model (ApoE$^{-/-}$) on a high fat diet, with significantly elevated uptake at the aortic arch at 10 & 18 weeks, suggesting sensitivity of the tracer to track aggravated plaques.

Stage of Research

Currently carrying out imaging efficiency studies *in vivo* with several mouse models. Good efficacy identified for atherosclerosis, head and neck squamous cell carcinoma models. Other tracers of CD163 in preliminary development.

Publications

Manuscript in submission.

Applications

- PET imaging - atherosclerosis, oncology, and other diseases pertaining to CD163.

Key Advantages

- **No known molecular agent for CD163 targeting.**

Patents

- Provisional filed.