

# Nanotherapy Targeting Metastatic Factor RHAMM Positive Tumors

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## Background & Unmet Need

- Pancreatic neuroendocrine tumors (PNETs) often lead to incurable, metastatic cancer, with only a 15% five-year survival rate
- Approved therapies such as sunitinib (a multi-targeted receptor tyrosine kinase inhibitor) and everolimus (an mTOR inhibitor) have advanced the standard of care for PNETs
- However, many patients eventually develop drug resistance and relapse, resulting in poor long-term survival
- **Unmet Need:** Novel targets and therapies for PNET treatment, particularly for patients who relapsed or refractory disease

## Technology Overview

- **The Technology:** Nanoparticle-based methods and compositions for the treatment of RHAMM-positive cancers
- **The Discovery:** Identification of an isoform of Receptor for Hyaluronic Acid Mediated Motility (RHAMM<sup>B</sup>) as being consistently upregulated in various high-grade tumors and metastases including PNETs
- The inventors designed gold nanoparticles (AuNP) that carry the pro-apoptotic peptide KLA and silencing RNA for Bcl-xL (siBcl-xL) to specifically target RHAMM<sup>B</sup>+ PNETs
- **PoC Data:** The nanoparticles successfully targeted RHAMM<sup>B</sup>+ PNETs and led to a significant reduction in tumor weight and volume during *in vivo* studies
- A synergistic killing effect was achieved with co-delivery of siBcl-xL and KLA peptide compared to either agent alone

## Inventors:

Nancy Du  
Ching-Hsuan Tung  
Seung Koo Lee  
Xiang Chen

## Patents:

PCT Application Filed

## Publications:

[Chen et al. bioRxiv. 2021.](#)

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## Cornell Reference:

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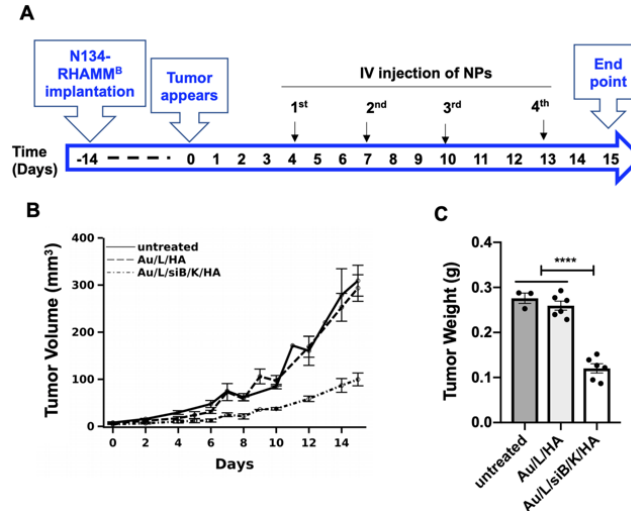
## Technology Applications

- RHAMM<sup>B</sup>-specific targeting and treatment of PNETs
- Treatment of other solid tumors with demonstrated RHAMM<sup>B</sup> overexpression (e.g., breast, pancreatic, ovarian, endometrial, lung, prostate, colorectal)

## Technology Advantages

- AuNPs have tunable size, are biocompatible, and have low cytotoxicity
- RHAMM<sup>B</sup>-specific delivery targets tumors with minimal adverse effects to healthy cells
- Combinational therapy produces synergistic pro-apoptotic effects

## Supporting Data / Figures



**Figure 1:** *In vivo* therapeutic efficacy of RHAMM<sup>B</sup>-targeting combinational nanocomplexes. Treatment with the nanocomplexes delivered a significant decrease in tumor volume and tumor weight compared to negative controls.

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