Gold-based Anticancer Therapeutics

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Opportunity

- Novel gold-based complexes with greater stability and higher potency compared to cisplatin and previous gold compounds
- Multiple cancer indications: testicular, ovarian, bladder, head, and neck cancers
- Treatment of cancers resistant to other therapies
Technology

• Gold complexes maintain cytotoxicity in cisplatin resistant tumor cell lines

• Cancer cells often overexpress both thioredoxin and thioredoxin reductase

• Therapeutic effect of gold therapies may originate within the mitochondria, with cell death being initiated via the inhibition of the enzyme thioredoxin reductase
Technology

Compound 1 shows higher cytotoxicity than cisplatin against H1703 lung carcinoma cell line.

IC\textsubscript{50} values as much as 80 times lower for Compound 1 compared to cisplatin.
UV-visible absorption spectra of Compound1 in a glutathione/pH 7.4 phosphate buffer solution (1 x 10⁻⁵ M glutathione and gold complex; 20°C).
Intellectual Property

• Patentability assessment and compound search revealed that gold complexes are novel with opportunity for broad IP coverage

• An application is planned for filing in the next 3-6 months that will cover the compounds and methods of use
R & D Status

Future research projects

• In-vivo efficacy studies with xenograft tumor model

• In-vivo toxicity studies

• Winship Cancer Institute collaborators Kenneth Hardcastle and Georgia Chen