

“NEXT GEN” THERAPEUTICS FOR OVARIAN CANCER

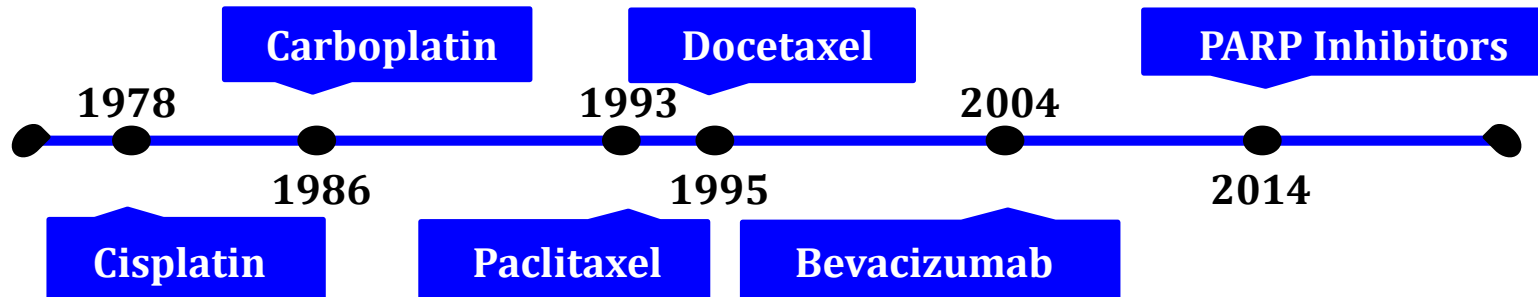
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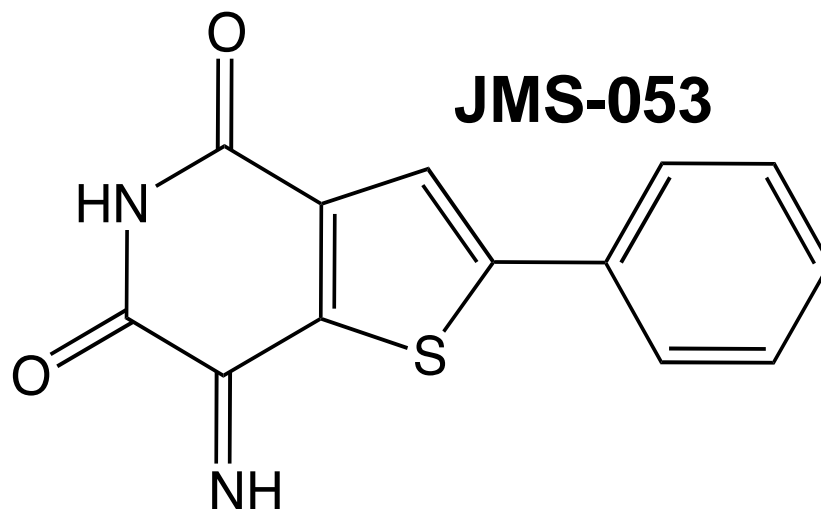
UNMET NEED

- Ovarian cancer (OvCa) is the 5th leading cause of cancer deaths in US women with a 5 year survival rate = ~45%.
- ~21,000 US women are diagnosed with OvCa (~240,000 worldwide) per year.
- The OvCa therapeutic standard of care lacks innovation.



KEY INNOVATION & IP POSITION

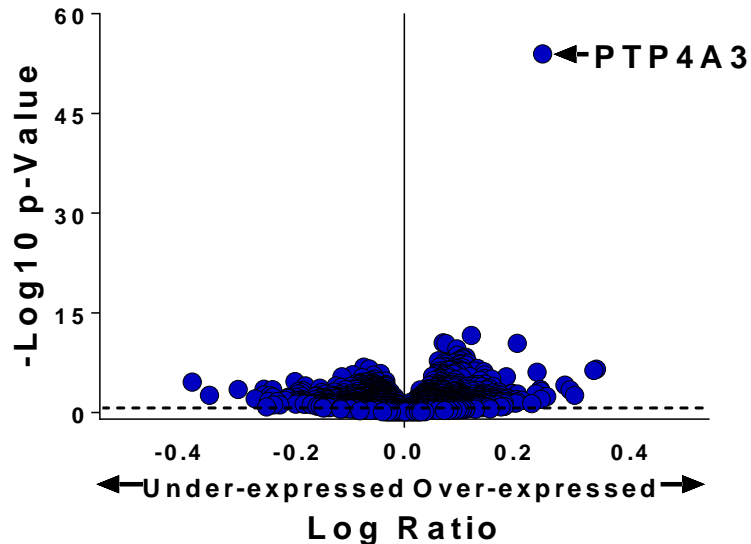
- Kinase inhibitors have had little impact in OvCa
- Phosphatases have emerged as tractable drug targets
- PTP4A3 is a known cancer causing protein frequently found in tumor metastasis
- JMS-053 is a potent small molecule inhibitor of PTP4A3



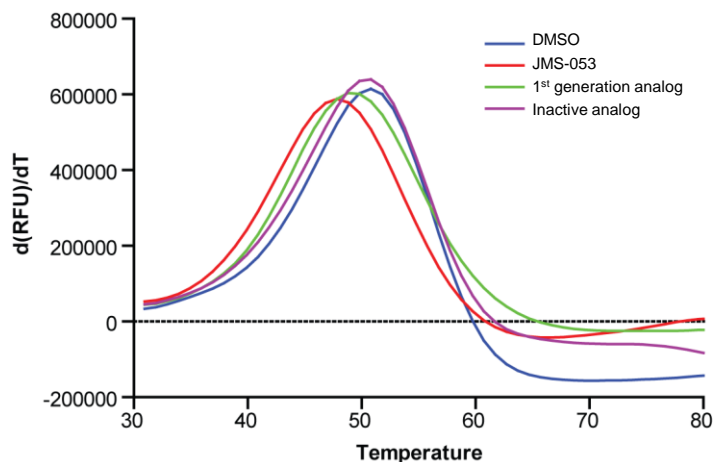
- US patent app No. 15/737,062 (12/15/17)
- EP patent app No. 16734519.8 (6/16/16)
- US provisional Application No. 62/536,125 (7/24/17)



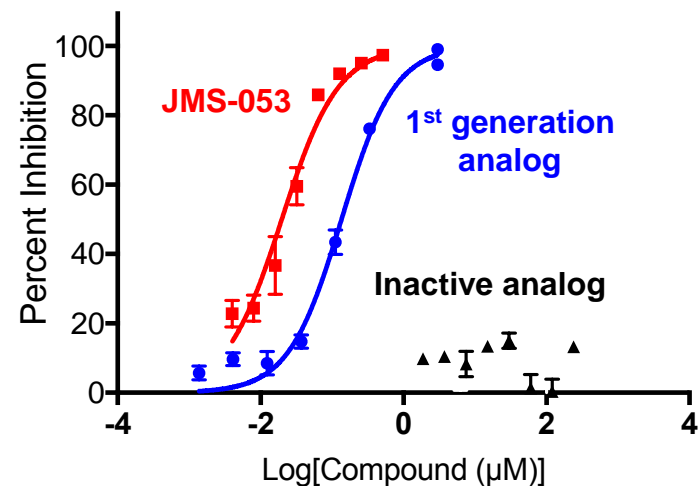
KEY EARLY STAGE FINDINGS



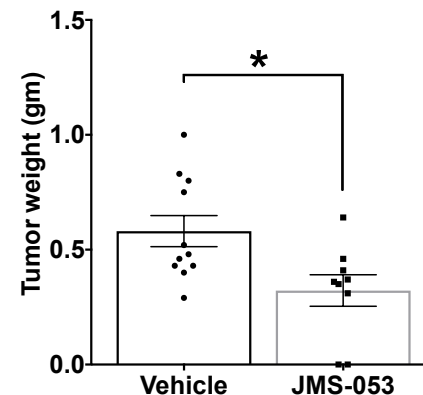
PTP4A3 is the most expressed mRNA in OvCa tumor samples.



Thermal shift analysis confirms target engagement

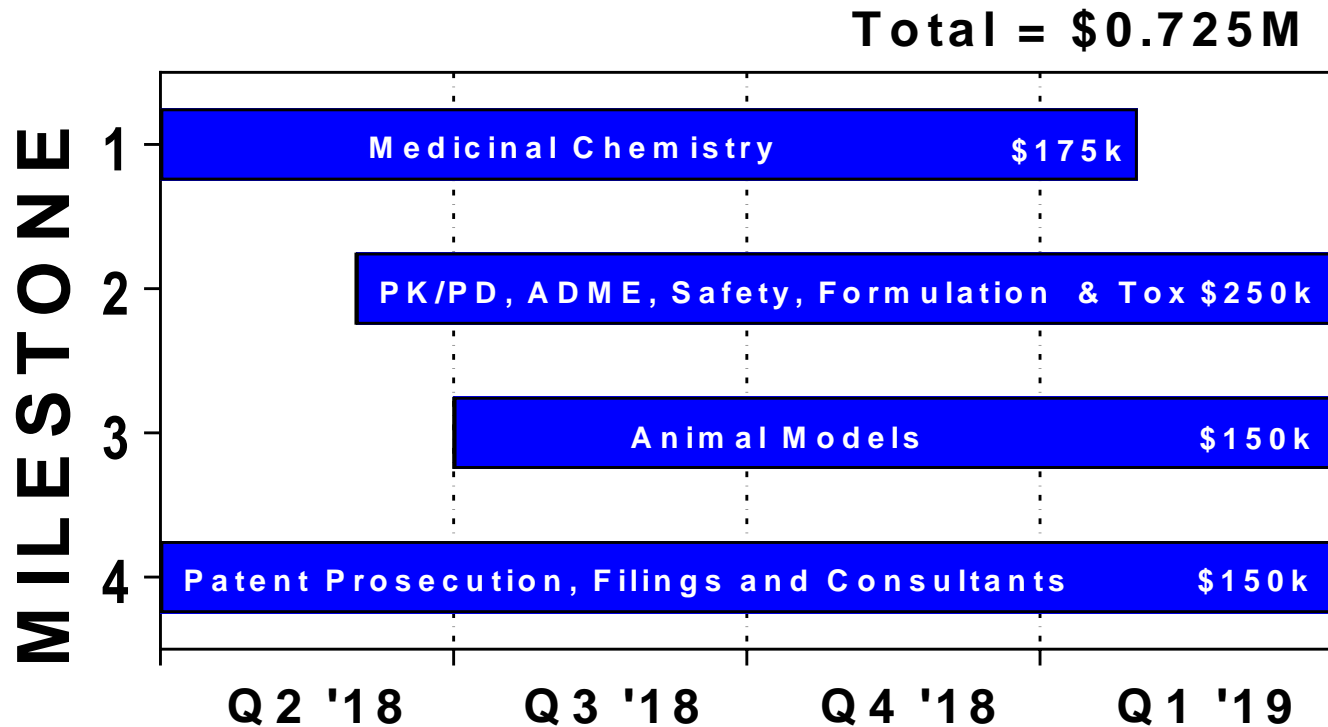


JMS-053 is the most potent inhibitor of PTP4A3 with a $K_i=18$ nM



JMS-053 reduces OvCa tumor weight

NEAR TERM RESEARCH PLAN



IND Enabling Studies (Q2 '19 – Q2 '20)

Pharmacology & safety pharmacology

DMPK

Toxicology

Genotoxicity

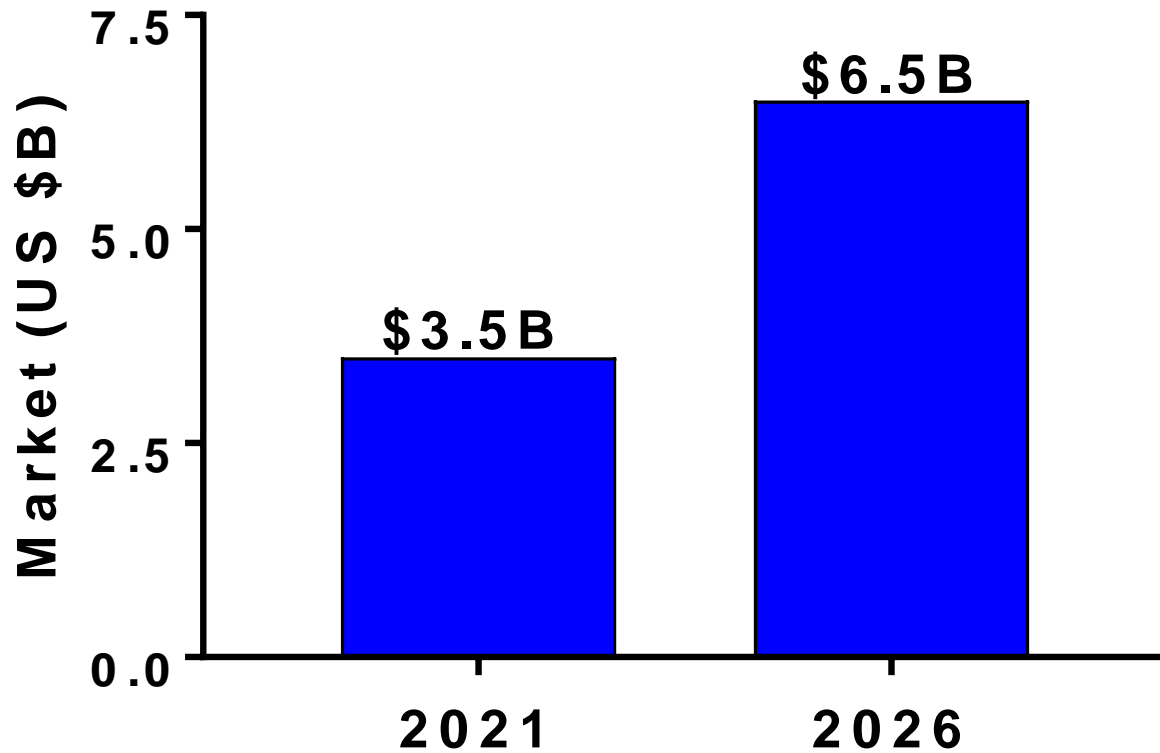
API

CTM

Regulatory



TOTAL OvCA MARKET



Competition

- No PTP4A3-targeted therapeutics on the market
- PTP4A3-targeted humanized antibody in Phase I clinical trial



LEADERSHIP

Elizabeth R. Sharlow, PhD **University of Virginia**

- >20 years experience in drug discovery and development in industry and academia, with 10+ years focusing on high throughput assay design and implementation
- Associate Professor Pharmacology
- >50 scientific papers
- Led science at startup pharmaceutical company

Peter Wipf, PhD **University of Pittsburgh**

- >25 years of experience in the field of Chemistry
- Distinguished Professor of Chemistry
- >650 scientific papers and patents

John S. Lazo, PhD **University of Virginia**

- >25 years of experience studying tumor cells and mechanism of small molecule drug action, 16 years focusing on phosphatase in cancer
- Harrison Distinguished Professor of Pharmacology
- >250 scientific papers and 10 patents
- Founded 3 startups including one that is now part of Seattle Genetics

Charles N. Landen **University of Virginia**

- >20 years of experience in OvCa medicine and research
- Associate Professor of Obstetrics & Gynecology
- Publisher of >50 scientific articles



FUNDING SECURED

- Small molecule inhibitors of tyrosine phosphatase PTP4A3: A novel therapeutic paradigm for treating breast cancer. Department of Defense (BC170507). 12/1/2017-11/30/2020.
- PTP4A3 phosphatase regulation of microvascular endothelial function. Commonwealth of Virginia 4-VA Collaborative Research Grant. 04/01/2017-03/31/2018.
- Development of a small molecule PTP4A3 inhibitor for the treatment of ovarian cancer. University of Virginia Ivy Foundation. (3/01/16-2/28/18).
- PTP4A3 as a molecular cancer target. National Cancer Institute, National Institutes of Health. (9/27/14-9/26/16).

