



THE BUSINESS PARTNER  
FOR YOUR IDEAS



# RON KINASE INHIBITOR FOR PREVENTING AND TREATING BONE LOSS

## THERAPEUTICS

Methods of treating cancer-related osteoporosis by inhibiting RON kinase.

### TECHNOLOGY TYPE

Drug Repurposing  
Oncology  
Osteoporosis  
Small Molecule

### STAGE OF DEVELOPMENT

Proof of concept demonstrated in animal models and Phase I clinical studies with BMS-777607/ASLAN002.

### IP PROTECTION

#### Nationalized PCT Issued in the United States

Ron Inhibitors for Use in Preventing and Treating Bone Loss  
US9907791B2

### LEARN MORE

Reference Number: U-5628

#### Roberta Hunt

Technology Manager  
roberta.hunt@tvc.utah.edu  
801-587-0519

### TECHNOLOGY SUMMARY

Over 70 percent of breast cancer patients develop bone metastasis, which causes severe pain, nerve compression, hypercalcemia, and debilitating bone fractures. Development and growth of bone metastases depend on the interactions between cells in the bone-tumor microenvironment that increase survival and proliferation of tumor cells. Current treatment options for osteolytic bone metastasis are limited to bisphosphonates and expensive RANKL-blocking antibody therapy with many adverse side effects.

A new, cost-effective treatment method utilizes a novel mechanism of action involving a RON kinase that activates macrophage-stimulating protein (MSP) which is a key driver of osteoclast activation *in vivo*. The pathway is independent of RANKL signaling. Inhibiting RON prevents both the development of osteolysis and the progression of existing osteolysis. Inhibiting this method also shows potential for treating bone loss due to osteoporosis.

### FEATURES AND BENEFITS

- Reduces cost and side effects of osteolytic bone metastasis and osteoporosis treatment.
- Prevents development and progression of osteolysis.
- Enables a novel mechanism for treating bone loss, independent of the RANKL-RANK pathway.
- Demonstrates potential as a combination therapy.

### RECENT PUBLICATIONS

Andrade, K., Fornetti, J., Zhao, L.C., Miller, S.C., Randall, R.L., Anderson, N., Waltz, S.E., McHale, M., Welm, A.L. (2017). RON kinase: a target for treatment of cancer-induced bone destruction and osteoporosis. *Science Translational Medicine*. 9(374): eaai9338.  
doi: [10.1126/scitranslmed.aai9338](https://doi.org/10.1126/scitranslmed.aai9338).

### INVENTOR PROFILE

**Alana Welm**, Ph.D., [Associate Professor - Oncological Sciences](#)  
**Kelsi Andrade**, Ph.D., Graduate Research Assistant – Welm Lab

DATE UPDATED: 7/17/2019