

## THALIDOMIDE ANALOGS THAT INHIBIT INFLAMMATION AND ANGIOGENESIS

### SUMMARY

The National Institute on Aging seeks parties interested licensing or collaborative research to co-develop thalidomide analogs to treat cancer and inflammatory diseases.

### REFERENCE NUMBER

E-208-2015

### PRODUCT TYPE

- Therapeutics

### KEYWORDS

- thalidomide, lenalidomide, pomalidomide
- anti-angiogenesis, anti-inflammatory

### COLLABORATION OPPORTUNITY

This invention is available for licensing and co-development.

### CONTACT

John D. Hewes

NIA - National Institute on Aging

240-276-5515

[John.Hewes@nih.gov](mailto:John.Hewes@nih.gov)

### DESCRIPTION OF TECHNOLOGY

Thalidomide and its close analogs (lenalidomide and pomalidomide) are widely used to treat a variety of diseases, such as multiple myeloma and other cancers as well as the symptoms of several inflammatory disorders. However, thalidomide is known for its teratogenic adverse effects when first clinically introduced in the 1950s, and is associated with drowsiness and peripheral neuropathy. Hence, there is intense interest to synthesize, identify and develop safer analogs.

Researchers at the National Institute on Aging's [Drug Design and Development Section](#) synthesized novel thalidomide analogs that demonstrate clinical potential without being teratogenic, as initially evaluated in *in vivo* zebrafish and chicken embryo model systems and in cell culture. These new compounds differentially provide potent anti-angiogenesis and/or anti-inflammatory action. The agents have potential for development of new cancer therapies and treatment of a number of neurological and systemic disorders involving chronic inflammation and elevated TNF-alpha levels.

### POTENTIAL COMMERCIAL APPLICATIONS

NCI Technology Transfer Center

<https://techtransfer.cancer.gov/pdf/e-208-2015.pdf>



- Cancer therapeutics
- Inflammatory disorders such as Crohn's disease, sarcoidosis, graft-versus-host disease, and rheumatoid arthritis
- Neuroinflammatory disorders (acute: traumatic brain injury and stroke; chronic: Parkinson's disease, Alzheimer's disease, multiple sclerosis)

### COMPETITIVE ADVANTAGES

- Non-teratogenic
- Potent

### INVENTOR(S)

[Nigel H. Greig](#) (NIA), Weiming Luo (NIA), David Tweedie (NIA), William Douglas Figg, Sr. (NCI), Neil Vargesson (Univ. Aberdeen, Scotland), and Shaunna Beedie (NCI & Univ. Aberdeen, Scotland)

### DEVELOPMENT STAGE

- Discovery (Lead Identification)

### PATENT STATUS

- **U.S. Filed:** US Provisional Patent Application No. 62/235, 105, filed September 30, 2015.

### THERAPEUTIC AREA

- Cancer/Neoplasm
- Central Nervous System, Mental and Behavioral, Pain
- Immune System and Inflammation