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UNIVERSITY OF WISCONSIN-MADISON

## Synthesizing Natural Products to Treat High Blood Cholesterol

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**WARF: P150023US03**

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**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing indole compounds to treat health problems associated with high blood cholesterol.**

### Overview

Indole is one of the most abundant heterocycles in pharmaceuticals and bioactive natural products, such as indometacin, a non-steroid anti-inflammatory drug, and vincristine, a natural product used to treat a number of types of cancers. Given the importance of indoles, much effort has been devoted to preparing them from a variety of starting materials. However, inefficiency, low selectivity and low yield remain a problem for polysubstituted indoles or when the indole is in a complex polycyclic system.

### The Invention

UW–Madison researchers have developed an efficient method to synthesize indole compounds, specifically polysubstituted dimeric indoles. These compounds have potential health benefits because they are able to reduce the amount of PCSK9 in cells. PCSK9 is an enzyme known to play a major role in controlling the concentration of LDL cholesterol in the bloodstream.

Some of the compounds have been tested *in vitro* for their ability to increase the secretion of a potent blood sugar hormone in the body called glucagon-like peptide 1 (GLP-1). Others have the ability to selectively inhibit the secretion of interleukin-17 (IL-17), which is essential in many autoimmune diseases including arthritis, multiple sclerosis, psoriasis and inflammatory bowel disease.

The synthesis process involves a cascade reaction with transition metal catalysts. The resulting compounds can be further functionalized to yield more substituted indoles.

### Applications

- Synthesizing indole compounds to treat ailments in mammals connected to GLP-1, PCSK9 and/or IL-17

### Key Benefits

- More efficient than other methods
- Potential health implications are significant – from treating hyperglycemia to high cholesterol and autoimmune diseases.

### Stage of Development

The development of this technology was supported by WARF Accelerator. WARF Accelerator selects WARF's most commercially promising technologies and provides expert assistance and funding to enable achievement of commercially significant milestones. We promise to keep you informed of the progress of our technologies and related technologies on our device. [See our privacy policy.](#)

WARF believes that these technologies are especially attractive opportunities for licensing.

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## Additional Information

### For More Information About the Inventors

- [Weiping Tang](#)

### Related Intellectual Property

- [View Divisional Patent in PDF format.](#)

### Tech Fields

- [Materials & Chemicals : Synthesis](#)
- [Therapeutics & Vaccines : Cardiovascular](#)
- [Therapeutics & Vaccines : Metabolic disorders](#)

For current licensing status, please contact Rafael Diaz at [rdiaz@warf.org](mailto:rdiaz@warf.org) or 608-960-9847

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