



## New Benzodiazepine-Based Compounds Targeting G-Protein Coupled Receptors

OTT1890

### Applications

Depression, schizophrenia, anxiety treatment, and hypertension management.

### Target Problems

Depression, schizophrenia, anxiety, and hypertension require precise control of complex biological pathways, but current therapies lack selectivity. Many drugs activate multiple adrenergic and serotonin receptor subtypes at once, reducing effectiveness and causing side effects like sedation. There is a clear need for more targeted treatments that improve outcomes while minimizing unwanted side effects.

### Solution

UWM researchers have developed selective small-molecule therapeutics designed to better treat patients with mental health and cardiovascular conditions by more precisely targeting specific receptor subtypes. By selectively modulating adrenergic and serotonin receptors, these compounds help deliver more effective treatment while reducing unintended activation that can lead to sedation and other side effects—offering safer, more targeted options for those who need improved therapies compared to conventional drugs.

### Key Benefits

- **Improved precision** through subtype-selective targeting
- **Reduced sedation** in tested compounds
- **Improved efficacy** through focused receptor interaction
- **Broad therapeutic applicability** across CNS and cardiovascular indications

### About this Technology

This technology is a portfolio of benzodiazepine-inspired small-molecule ligands engineered to selectively modulate specific alpha-2 adrenergic receptor subtypes while also interacting with serotonin (5-HT<sub>2</sub>) receptors. By fine-tuning molecular structure and receptor binding properties, the compounds achieve differentiated interactions with targeted receptor subtypes, enabling more controlled pharmacological responses. This selective modulation allows the compounds to influence therapeutic pathways while minimizing off-target effects.

### Stage of Development

Preclinical stage with synthesized compounds and *in vitro/in vivo* testing completed for activity and safety profiling.

### Partnering Opportunity

We are seeking development partners with pharma companies, biotech firms, and drug development organizations.

### Intellectual Property (IP)

Patent pending. Protected and managed by the UWM Research Foundation.

### Lead Inventor

- **Alexander (Leggy) Arnold**, UWM Professor, Chemistry & Biochemistry