



POTENT AND SELECTIVE ANALOGUES OF MODAFINIL FOR THE TREATMENT OF SLEEP AND ATTENTION DISORDERS

SUMMARY

The National Institute on Drug Abuse's Medicinal Chemistry Section seeks partners interested in collaborative research to co-develop analogues of modafinil for the treatment of drug abuse and sleep and attention disorders.

REFERENCE NUMBER

E-073-2013

PRODUCT TYPE

- Therapeutics

KEYWORDS

- narcolepsy
- attention deficit/hyperactivity disorder (ADHD)
- modafinil
- dopamine (DAT)
- serotonin (SERT)
- norepinephrine (NET)

COLLABORATION OPPORTUNITY

This invention is available for licensing.

CONTACT

Vio Conley

NIDA - National Institute of Drug Abuse

240-276-5531

Vio.Conley@nih.gov

DESCRIPTION OF TECHNOLOGY

Modafinil has attracted attention for the treatment of cognitive dysfunction in disorders such as attention-deficit/hyperactivity disorder (ADHD) as well as cocaine and methamphetamine dependence. However, modafinil has relatively low affinity for binding to the dopamine transporter (DAT) to block dopamine reuptake, and is water-insoluble, thus requiring large doses to achieve pharmacological effects.

Investigators at the [National Institute of Drug Abuse](#) have synthesized a series of modafinil analogues

that have higher affinity for the dopamine (DAT), serotonin (SERT) and/or norepinephrine (NET) transporters and improved water solubility. These novel analogues present the advantage of higher potency, which may translate into lower effective doses and better bioavailability over modafinil.

POTENTIAL COMMERCIAL APPLICATIONS

- Therapeutic agent for substance abuse (such as nicotine, cocaine, methamphetamine, opioids), for attention/cognitive disorders (such as ADHD), and for sleep disorders.

COMPETITIVE ADVANTAGES

- Higher affinity for monoamine transporters (DAT, SERT, and NET) compared to modafinil
- Analogues have lower effective doses
- Better bioavailability than modafinil
- Improved water solubility over modafinil

INVENTOR(S)

[Amy H. Newman](#) (NIDA)

DEVELOPMENT STAGE

- Discovery (Lead Identification)

PATENT STATUS

- **U.S. Filed:** US, Application No. 12/664,668 filed 15 Dec 2009

RELATED TECHNOLOGIES

- [E-251-2002](#)
- [E-128-2006](#)

THERAPEUTIC AREA

- Central Nervous System, Mental and Behavioral, Pain