VIRGINIA COMMONWEALTH UNIVERSITY

"Unique Therapy for Nicotine Withdrawal Symptoms" VCU #15-24

Applications

- Treatment of nicotine-induced withdrawal symptoms
- Pharmacotherapy for nicotine-ingested products including:
  - Cigarettes and other smoked tobacco (ex. hookah)
  - Smokeless tobacco
  - Electronic-cigarettes

Advantages

- Therapy does not produce nicotine-like effects
- Mechanism of action different from current therapies
- Blocks nicotine-induced withdrawal anxiety and increased sensitivity to pain
- Compound produces anti-depressant, anti-appetite, pro-social and pro-attention effects
- Not a Drug of Abuse

Inventors

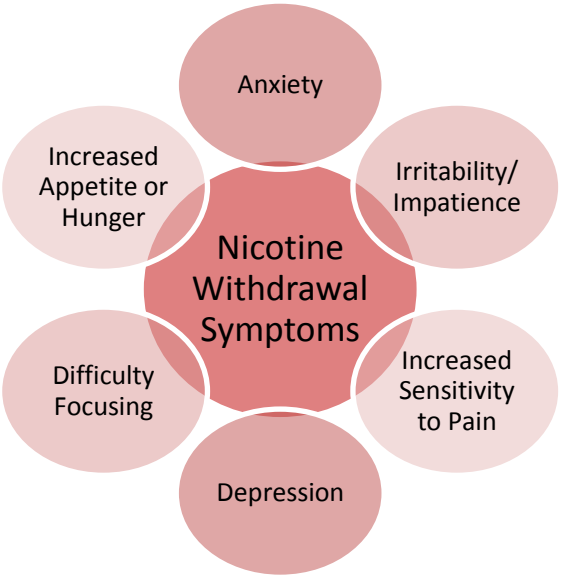
Richard Glennon, Ph.D.
Richard Young, Ph.D.

Contact

Magdalena K. Morgan, Ph.D.
Licensing Associate
mkmorgan@vcu.edu
Direct 804-827-6095

Market Need

Nicotine is the primary active constituent in smoked and smokeless tobacco products. Vaporized nicotine is the active ingredient in electronic-cigarettes (e-cigarettes). Nicotine addiction is difficult to overcome and often requires multiple attempts to quit. There are several medications available to those attempting to recover from nicotine addiction. Nicotine replacement therapies (ex. gum, patch, and inhaler) deliver a controlled dose of nicotine in order to relieve withdrawal symptoms during the process of cessation. However, many users find it difficult to gradually reduce their nicotine dose without experiencing nicotine-induced withdrawal symptoms. Other medications have chemical structures that are unlike nicotine but can produce nicotine-like effects to help people end their use of nicotine-ingested products. However, these medications produce limited success rates and can induce adverse neuropsychiatric events.



Technology Summary

Researchers at VCU have identified an experimental substance to treat a variety of nicotine-induced withdrawal symptoms. This compound has a mechanism of action that is different from current therapies and produces positive pharmacological effects in a variety of *in vivo* efficacy-like tests in animals. These effects include (a) blockade of nicotine-induced withdrawal anxiety and increases in sensitivity to pain, (b) lack of nicotine-, bupropion-, or varenicline-like effects and mechanisms of action, and (c) anti-depressant-like, anti-appetite-like, pro-social-like and pro-attention-like effects. Moreover, this drug has a reduced potential to cause adverse effects and is not a drug of abuse as demonstrated by extensive *in vitro* and *in vivo* studies. Taken together, the VCU compound represents novel pharmacotherapy for the treatment of nicotine-induced withdrawal symptoms associated with products that contain nicotine.

Technology Status

Patent pending: US and foreign rights available.
This technology is available for licensing to industry for further development and commercialization.