

Opioid Receptor Modulators

Novel chemicals for treatment of drug use disorder

VCU researchers have developed a novel compound which can modulate opioid receptors to treat addiction. Drug addiction and abuse is a global epidemic and growing. In 2015, over 33,000 people died in the US alone from opioid overdose. The two current methods for treating opioid addiction are detoxification and maintenance therapy using opioid receptor antagonists. The most common opioid receptor antagonist used in treatment is naloxone. While effective, naloxone has the potential to cause hepatotoxicity, along with cardiovascular and pulmonary problems at higher doses. VCU's novel compound (NFP) has been found to be an effective opioid receptor agonist with a higher affinity and significantly fewer resulting side effects than naloxone.

The technology

NFP is a derivative of our previously developed compound NAP, which was developed to address the side effects of existing opioid receptor agonists. In order to evaluate the binding affinity and effectiveness of this compound, *in vitro* competition assays and *in vivo* withdrawal studies were performed. The competition assays showed that NFP has superior selectivity for the mu opioid receptor over existing compounds, while the withdrawal studies showed that NFP produced significantly less withdrawal symptoms than naloxone at similar doses. These results give NFP the potential to be one of the lead compounds during the development of new agents to treat opioid addiction.

Benefits

- » Higher affinity for mu opioid receptors
- » Fewer withdrawal symptoms than traditional treatment

Applications

- » Treatment of neurological disorders:
 - Drug use disorder
 - Addiction
 - Alcoholism

Patent status:

Patent pending: U.S. and foreign rights are available.

License status:

This technology is available for licensing to industry for further development and commercialization.

Category:

Biomedical

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