



GABA receptor selective ligands for pain & CNS disorders

OTT ID #1410

APPLICATIONS

Recent studies have implicated the $\alpha 6$ GABA_ARs as the valid target in trigeminal orofacial pain, neuropsychiatric disorders with sensori-motor gating deficits, depression, and migraine. Promising results were found in animal models for several of these indications, and the lead compounds show a lack of cytotoxicity, improved metabolic stability, an excellent bioavailability after oral administration, and appropriate brain concentrations, rendering them potential candidates for treatment of CNS disorders.

TARGET PROBLEMS

Many GABAergic drugs on the market today offer little subtype selectivity and thus exhibit undesired side effects (sedation, ataxia, amnesia, tolerance, and addiction). There has been a lack of new drugs developed for CNS disorders, while the social, clinical, and economic need remains.

TECHNOLOGY

Through a joint collaboration, the inventors have synthesized and tested novel non-benzodiazepine GABA_A receptor ligands functionally selective to the alpha 6 subtype ($\alpha 6$ GABA_AR).

We believe our team has discovered the first $\alpha 6$ GABA_AR selective ligands. The team continues to explore indications including epilepsy, tic disorders, schizophrenia, obsessive compulsive disorders, attention deficit disorders, depression, migraine, and pain.

KEY BENEFITS

- **Functionally selective** – The novel compounds are functionally selective for the $\alpha 6$ GABA_ARsubtypes
- **Non-Sedating** – Avoidance of the $\alpha 1$ -subtype aids in preventing sedative and other psychomotor-impairing effects
- **Metabolically stable** – Deuteration of the methoxy group of aryl-pyrazoloquinolinones improves metabolic stability and optimizes bioavailability
- **Safer/Less addictive** – Compounds which are silent or nearly silent at the $\alpha 1$ -and $\alpha 5$ - receptor subtypes should demonstrate limited tolerance and less addictive effects

INTELLECTUAL PROPERTY

US and EP Nationalized Applications [PCT/US2016/035761](https://www.uspto.gov/patents/applications/PCT/US2016/035761)

This technology is part of an active and ongoing research program and is seeking partners for development of the final product. It is available for developmental research support/licensing under either exclusive or non-exclusive terms.

INVENTORS

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