

Pharmacy Student Summer Research Fellowship Proposal for 2020

FACULTY INFORMATION:

NAME: Narsimha Reddy Penthala

DEPARTMENT: Pharmaceutical Sciences

LOCATION: BioMed-2, Room #112-2

PROJECT INFORMATION:

TITLE: Synthesis and evaluation of a novel class of cannabinoid-1 (CB₁) receptor ligands

LOCATION OF THE PROJECT: Bio-Med-1 and 2

BRIEF DESCRIPTION OF THE PROJECT:

Terpenophenolic compounds that are structurally related to tetrahydrocannabinol (THC) present in *Cannabis* ("*Cannabis sativa*") and occur naturally in the nervous and immune systems of animals are called cannabinoids. Chemically cannabinoids are classified into three types which include classical cannabinoids (structurally related to THC), the nonclassical cannabinoids, and the compounds which do not fall into classical or non-classical but bind to cannabinoid receptors are class three type. From our laboratory a library of simple and substituted *N*-benzyl indolequinuclidinone (IQD) analogs were rationally designed and synthesized; these compounds constitute a novel class of synthetic cannabinoid ligands based on a reported bioactive indolopyridone scaffold. The synthesized IQDs were evaluated against the two cannabinoid receptor subtypes, CB₁ and CB₂. Compounds displayed high affinity for both CB₁ and CB₂ receptors. This present project aimed to design and develop novel class of CB₁ selective synthetic cannabinoids.

STUDENT'S RESPONSIBILITIES-DUTIES IN THE PROPOSED PROJECT: Synthesis of novel class of synthetic cannabinoids. Evaluation of the binding affinity for novel class cannabinoids in Dr. Paul Prather lab, Pharmacology and Toxicology department.

ESTIMATED TIME FOR PROJECT COMPLETION: 10 weeks

DOES THE WORK INVOLVE ANIMAL RESEARCH? NO

ORAL/POSTER PRESENTATION OPPORTUNITY: Yes

MANUSCRIPT SUBMISSION: Possible journal names for this work to be submitted:
Medicinal Chemistry Journals