NOVEL COMPOUNDS THAT BIND SELECTIVITY TO THE OPIOID RECEPTOR FOR THERAPEUTIC APPLICATIONS

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Technology description

Among the three classes of opioid receptors, delta, kappa, and mu, the delta-selective opioids offer prospects as powerful analgesics without the numerous negative side effects associated with traditional narcotics such as morphine (e.g., narcotic dependence and tolerance, severe constipation and respiratory depression). Moreover, antagonists of the delta-selective opioid can alleviate the behavioral effects of illicit drugs such as cocaine, thus being able to treat addiction to such drugs. Similarly, both delta opioid agonists and antagonists have been shown to accentuate the pain-killing effects and reduce the negative side effects of morphine and other mu opioids when administered concurrently. Researchers working at the University of Missouri-St. Louis discovered that certain triazole compounds (e.g., di- and tri-substituted triazole ring compounds) exhibit high binding affinity and high selectivity for opioid receptors and exhibit excellent bioavailability. These delta-selective opioids offer great potential across a wide range of pharmaceutical applications.

MARKET

The overall pain market in 2007 was estimated to be over $24 billion. The opioids portion of this market, according to Datamonitor, is set to grow from $9.6 billion in 2008 to $11.9 billion in 2018 across the seven major markets.

Application area

Delta-selective opioids are attractive candidates for a broad range of novel pharmaceutical applications:

Powerful, yet safe, analgesics

Treatment or prevention of opioid receptor related diseases and conditions such as pain, anxiety, obesity, depression or stress-related diseases

Agents for treating immune disorders > New treatments for drug addiction (e.g., cocaine, heroin, oxycodone)

Advantages

Can provide a powerful, yet safe, analgesic to treat pain without the negative side effects of narcotics

such as morphine (e.g., addiction, respiratory depression, physical dependence, gastrointestinal problems, memory problems, insomnia, etc.)
Compounds exhibit high binding affinity and high selectivity for the delta opioid receptors
Compounds exhibit excellent bioavailability

Institution

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