Fatty Acid Uptake Inhibitors

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Technology description

Small molecule fatty acid uptake inhibitors as potential treatment for obesity and other metabolic disorders.

Technology Description

University of Nebraska—Lincoln researchers, Drs. Concetta DiRusso & Paul Black, used a proprietary high-throughput screening method to identify and characterize in cell based assays compounds that inhibit FATP2 mediated fatty acid uptake. The compounds have unique structural properties, are not toxic to cells, do not disrupt the cell-cell contacts required for barrier function, and are specific to long chain fatty acid transport. These compounds have potential therapeutic applicability for the prevention and resolution of diseases involving fatty acid uptake and metabolism including but not limited to obesity, Type 2 Diabetes, metabolic syndrome, cardiovascular disease, and non-alcoholic fatty liver disease.

Inventive Feature(s)

- Proprietary screen to identify small molecule inhibitors of FATP2 mediated fatty acid uptake
- Compound efficacy and safety have been confirmedin vivo&in vitro
- Effective at micro-molar concentrationsin vitro

Publication(s)

Ahowesso, C., Black, P. N., Saini, N., Montefusco, D., Chekal, J., Malosh, C., Lindsley, C. W., Stauffer, S. R., and DiRusso, C. C. (2015) Chemical inhibition of fatty acid absorption and cellular uptake limits lipotoxic cell death .Biochem Pharmacol

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Sandoval, A., Chokshi, A., Jesch, E. D., Black, P. N., and Dirusso, C. C. (2010) Identification and

characterization of small compound inhibitors of human FATP2 .Biochem Pharmacol79, 990-999

Li, H., Black, P. N., Chokshi, A., Sandoval-Alvarez, A., Vatsyayan, R., Sealls, W., and DiRusso, C. C. (2008) High-throughput screening for fatty acid uptake inhibitors in humanized yeast identifies atypical antipsychotic drugs that cause dyslipidemias .J Lipid Res49, 230-244

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Application area

Treatment for obesity and other metabolic disorders

Advantages

- Low toxicity
- Fatty acid uptake inhibition is specific to long chain fatty acid transport

Institution

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