Michael Gatch, PhD
College of Biomedical and Translational Sciences
Pharmacology & Neuroscience
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Area of Expertise

The focus of my research has two broad aims.
The first aim is to screen compounds that will attenuate the subjective and reinforcing effects of abused drugs as part of a NIDA-funded contract searching for effective treatment drugs for addiction to cocaine, methamphetamine, nicotine, and marijuana.
The second aim is to evaluate the potential abuse liability of novel designer drugs that are increasingly available as "legal" alternatives to controlled substances. We use drug discrimination procedures which assess the subjective effects of common drugs of abuse such as cocaine, methamphetamine, nicotine, and marijuana, with designer drugs like MDMA (Ecstasy), with opioids like morphine, or with hallucinogens like LSD. We also test the reinforcing/rewarding effects of drugs using the conditioned place preference and self-administration assays.

Qualifications

BA in Behavioral Science, The University of Chicago

MA in Behavior Science, University of Houston

PhD in Psychology , Utah State University

Recent Publications

Behavioral pharmacology of novel synthetic indazole, indole, and benzimidazole cannabinoids in rodents
Shetty, R. A., Hill, R. D., McDonald, J. A., Sumien, N., Forster, M. J. & Gatch, M. B., Dec 2026, In: Journal of Cannabis Research. 8, 1, 22.

Locomotor and discriminative stimulus effects of N-cyclohexyl butylone and N-cyclohexyl methylone
Gatch, M. B., Jia, S., Shetty, R. A., Hill, R. D., Sumien, N. & Forster, M. J., May 2026, In: Frontiers in Pharmacology. 17, 1823177.

Locomotor stimulant and drug discrimination effects of five synthetic cathinones in rodents
Gatch, M. B., Hill, R. D., Shetty, R. A., Kusi-Boadum, N. K., Priddy, J., Sumien, N. & Forster, M. J., Dec 2025, In: Pharmacology Biochemistry and Behavior. 257, 174100.

Behavioral effects of three synthetic tryptamine derivatives in rodents
Hill, R. D., Shetty, R. A., Sumien, N., Priddy, J., Forster, M. J. & Gatch, M. B., 1 Sep 2025, In: Journal of Psychopharmacology. 39, 9, p. 1007-1013 7 p.

Discriminative stimulus and antinociceptive effects of sixteen nitazene analogs in rodents
Gatch, M. B., Hill, R. D., Sundar, M. & Shetty, R. A., 1 Jul 2025, In: Neuropharmacology. 272, 110416.

Locomotor and discriminative stimulus effects of fluorinated analogs of amphetamine and methamphetamine in mice and rats
Anchondo, O., Shetty, R. A. & Gatch, M. B., Jul 2025, In: Journal of Pharmacology and Experimental Therapeutics. 392, 7 , 103617.

Locomotor and discriminative stimulus effects of NBOH hallucinogens in rodents
Munir, D. D., Shetty, R. A., Gatch, M. B., Sumien, N., Hill, R. D., Priddy, J. A. & Forster, M. J., 1 Apr 2025, In: Behavioural pharmacology. 36, 2-3, p. 107-114 8 p.

Locomotor and discriminative stimulus effects of three benzofuran compounds in comparison to abused psychostimulants
Hill, R. D., Shetty, R., Sumien, N., Forster, M. & Gatch, M., 5 Aug 2023, In: Drug and Alcohol Dependence. 8 p.

Comparison of locomotor stimulant and drug discrimination effects of four synthetic cathinones to commonly abused psychostimulants
Shetty, R. A., Hoch, A. C., Sumien, N., Forster, M. J. & Gatch, M. B., May 2023, In: Journal of Psychopharmacology. 37, 5 , p. 520-528 9 p.

Behavioral pharmacology of five novel synthetic cannabinoids
Gatch, M. B., Tourigny, A., Shetty, R. A. & Forster, M. J., 1 Apr 2022, In: Behavioural pharmacology. 33, 23, p. 175-183 9 p.

Sponsored Projects

Confidential
Gatch, M. (PI) & Forster, M. (CoI)
Confidential
18/07/19 → 26/11/20

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Gatch, M. (PI), Forster, M. (CoI) & Shetty, R. (CoI)
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Evaluation of Abuse of Potenti
Gatch, M. (PI), Forster, M. (CoI) & Shetty, R. (CoI)
US Department of Justice
19/07/19 → 30/09/24

Evaluation of Abuse of Potenti
Gatch, M. (PI)
US Department of Justice
19/07/19 → 30/09/24

Evaluation of Abuse of Potential of Cathinones Using In Vivo Pharmacological Studies
Gatch, M. (PI), Forster, M. (CoI) & Shetty, R. (CoI)

US Department of Justice
19/07/19 → 2/02/24

Evaluation of Abuse of Potential of Cathinones Using In Vivo Pharmacological Studies
Gatch, M. (PI) & Forster, M. (CoI)
US Department of Justice
19/07/19 → 26/12/22

Evaluation of Abuse Potential
Gatch, M. (PI) & Forster, M. (CoI)
US Department of Justice
18/07/19 → 2/06/25

Evaluation of Abuse Potential
Gatch, M. (PI)
US Department of Justice
18/07/19 → 2/06/25

Evaluation of Abuse Potential
Shetty, R. (PI), Forster, M. (CoI) & Gatch, M. (CoI)
US Department of Justice
30/09/24 → 29/09/29

Evaluation of Abuse Potential
Shetty, R. (PI), Forster, M. (CoI) & Gatch, M. (CoI)
US Department of Justice
4/02/25 → 29/09/26

Evaluation of Abuse Potential
Shetty, R. (PI), Forster, M. (CoI) & Gatch, M. (CoI)
US Department of Justice
4/02/25 → 29/09/26

Evaluation of Abuse Potential of Synthetic Opioids Using In Vivo Pharmacological Studies
Gatch, M. (PI) & Forster, M. (CoI)
US Department of Justice
18/07/19 → 7/02/24

Evaluation of Abuse Potential of Synthetic Opioids Using In Vivo Pharmacological Studies
Gatch, M. (PI) & Forster, M. (CoI)
US Department of Justice
18/07/19 → 7/02/24

Evaluation of Abuse Potential of Synthetic Opioids Using In Vivo Pharmacological Studies
Gatch, M. (PI)
US Department of Justice
18/07/19 → 25/10/22

Evaluation of Abuse Potential of Synthetic Opioids Using In Vivo Pharmacological Studies
Gatch, M. (PI) & Forster, M. (CoI)
US Department of Justice
18/07/19 → 25/10/22

Evaluation of Six Synthetic Tryptamines
Gatch, M. (PI) & Forster, M. (CoI)
US Department of Justice

1/09/18 → 28/02/19

Evaluation of Synthetic Opioid Substances using the Drug Discrimination Assay
Gatch, M. (PI) & Forster, M. (CoI)
US Department of Justice
1/08/17 → 30/09/18

Evaluation of Synthetic Opioid Substances using the Drug Discrimination Assay
Gatch, M. (PI) & Forster, M. (CoI)
US Department of Justice
1/09/18 → 31/08/19

Evaluation of Two Synthetic Tryptamines
Gatch, M. (PI)
US Department of Justice
20/11/19 → 19/04/20

Mechanisms of Carisoprodol Abuse
Forster, M. (PI) & Gatch, M. (CoI)
West Virginia University Research Corp
1/02/12 → 31/05/14

Rodent Testing to Identify Pharmacotherapies for Substance Dependence
Forster, M. (PI) & Gatch, M. (CoI)
NIDA: National Institute on Drug Abuse
31/12/12 → 3/01/18

Rodent Testing to Identify Pharmacotherapies for Substance Dependence
Forster, M. (PI) & Gatch, M. (CoI)
NIDA: National Institute on Drug Abuse
4/01/16 → 20/09/18

Using rodent behavioral models
Forster, M. (PI), Gatch, M. (CoI), Shetty, R. (CoI) & Sumien, N. (CoI)
NIDA: National Institute on Drug Abuse
4/01/23 → 3/01/28

Using rodent behavioral models to identify substance abuse pharmacotherapies
Forster, M. (PI), Gatch, M. (CoI), Sumien, N. (CoI) & Shetty, R. (CoI)
NIDA: National Institute on Drug Abuse
20/09/18 → 3/01/23