Michael Forster, PhD
Graduate School of Biomedical Sciences
Institute for Healthy Aging
Pharmacology & Neuroscience
Email: Michael.Forster@unthsc.edu

Area of Expertise

The goal of research in my lab is to understand the biology that makes us slow down and become more vulnerable to disease and injury as we grow older. We know that it is possible to combat aging biology because some people achieve advanced age in truly great condition. Studies of the habits and biology of such individuals during their lives are underway, but it may take several human lifetimes for them to be completed. Lower organisms grow old more rapidly and, like humans, show great differences among individuals in terms of how long they remain robust, and resist disease and injury. By studying lower organisms, my laboratory is focused on the promise that we can rapidly discover ways to combat deleterious aging conditions, study how they work, and design trials in humans. Understanding the biology of aging will help us treat all aging-related diseases (i.e., Alzheimer's disease, diabetes, etc).

Qualifications

MA in Psychobiology, Bowling Green State University

PhD in Psychobiology, Bowling Green State University

BA in Experimental Psychology, Muhlenberg College

Recent Publications

Novel pharmacotherapy: NNI-362, an allosteric p70S6 kinase stimulator, reverses cognitive and neural regenerative deficits in models of aging and disease
Sumien, N., Wells, M. S., Sidhu, A., Wong, J. M., Forster, M. J., Zheng, Q. X. & Kelleher-Andersson, J. A., Dec 2021, In: Stem Cell Research and Therapy. 12, 1, 59.

Behavioral effects of four novel synthetic cathinone analogs in rodents
Gatch, M. B., Shetty, R. A., Sumien, N. & Forster, M. J., Jul 2021, In: Addiction Biology. 26, 4, e12987.

Early loss of cerebellar Purkinje cells in human and a transgenic mouse model of Alzheimer's disease
Chaudhari, K., Wang, L., Kruse, J., Winters, A., Sumien, N., Shetty, R., Prah, J., Liu, R., Shi, J., Forster, M. & Yang, S. H., 2021, In: Neurological Research. 43, 7, p. 570-581 12 p.

Carisoprodol pharmacokinetics and distribution in the nucleus accumbens correlates with behavioral effects in rats independent from its metabolism to meprobamate
Carbonaro, T. M., Nguyen, V., Forster, M. J., Gatch, M. B. & Prokai, L., 1 Sep 2020, In: Neuropharmacology. 174, 108152.

Methylenedioxymethamphetamine-like discriminative stimulus effects of pyrrolidinyl cathinones in rats
Gatch, M. B. & Forster, M. J., 1 Jul 2020, In: Journal of Psychopharmacology. 34, 7, p. 778-785 8 p.

Pharmacologic fibroblast reprogramming into photoreceptors restores vision
Mahato, B., Kaya, K. D., Fan, Y., Sumien, N., Shetty, R. A., Zhang, W., Davis, D., Mock, T., Batabyal, S., Ni, A., Mohanty, S., Han, Z., Farjo, R., Forster, M. J., Swaroop, A. & Chavala, S. H., 7 May 2020, In: Nature. 581, 7806, p. 83-88 6 p.

Effects of dietary 5-methoxyindole-2-carboxylic acid on brain functional recovery after ischemic stroke
Sumien, N., Huang, R., Chen, Z., Vann, P. H., Wong, J. M., Li, W., Yang, S., Forster, M. J. & Yan, L. J., 27 Jan 2020, In: Behavioural Brain Research. 378, 112278.

Methylenedioxymethamphetamine-like discriminative stimulus effects of seven cathinones in rats
Gatch, M. B., Dolan, S. B. & Forster, M. J., 2020, (Accepted/In press) In: Behavioural pharmacology. p. 378-384 7 p.

Locomotor activity and discriminative stimulus effects of five novel synthetic cathinone analogs in mice and rats
Gatch, M. B., Dolan, S. B. & Forster, M. J., 1 Jun 2019, In: Drug and Alcohol Dependence. 199, p. 50-58 9 p.

Supplementation with N-acetyl cysteine affects motor and cognitive function in young but not old mice
Ikonne, U. S., Vann, P. H., Wong, J. M., Forster, M. J. & Sumien, N., 1 Mar 2019, In: Journal of Nutrition. 149, 3, p. 463-470 8 p.

Sponsored Projects

Anti-Angiogenic Effect of Curcumin on Obesity-Related Inflammation and Oxidative Stress in Middle-Aged C57BL/6 Mice
Filipetto, F., Franks, S., Forster, M. & Sumien, N.
Intramural Research(UNTHSC)
15/01/12 → 14/01/13

ASSESSMENT OF COCAINE PHARMACOTHERAPIES
Forster, M. & FORSTER, M.
National Institute on Drug Abuse
30/09/95 → 29/03/99

ASSESSMENT OF COCAINE PHARMACOTHERAPIES
Forster, M. & FORSTER, M.
30/09/95 → 29/03/99

ASSESSMENT OF POTENIAL COCAINE TREATMENT MEDICATIONS IN
Forster, M.
National Institute on Drug Abuse
30/09/92 → 30/09/97

ASSESSMENT OF POTENTIAL COCAINE TREATMENT MEDICATIONS
Forster, M. & FORSTER, M.
National Institute on Drug Abuse
30/09/97 → 29/09/01

ASSESSMENT OF POTENTIAL COCAINE TREATMENT MEDICATIONS
Forster, M. & FORSTER, M.
30/09/97 → 29/09/01

BASE AWARD FOR USING RODENT BEHAVIORAL MODELS TO IDENTIFY SUBSTANCE ABUSE PHARMACOTHERAPIES
Forster, M.
National Institute on Drug Abuse

Brain aging and antioxidant supplementation
Forster, M. & FORSTER, M. J.
National Institute on Aging
15/08/06 → 31/05/12

Brain aging and antioxidant supplementation
Forster, M.
15/08/06 → 31/05/12

Changes to Serum and Neuronal Levels of Alpha Synuclein in Response to Acute and Chronic Cocaine Administration for Craig Hilburn
Forster, M.

Peter F. McManus Charitable Trust
9/12/09 → 31/12/11

Cocaine-induced Stroke Susceptibility: Brain Function and Metabolism Signaling Pathways
Sumien, N., Forster, M. & Yang, S.
Intramural Research(UNTHSC)
1/05/16 → 31/08/18

Contract Year 3 increment in the amount of $627,561.
Forster, M. & FORSTER, M.
National Institute on Drug Abuse

Contract Year 3 increment in the amount of $627,561.
Forster, M.

Dietary targeting of dihydrolipoamide dehydrogenase for stroke tolerance
Forster, M., Yan, L., FORSTER, M. J., YAN, L. & Yan, L.
National Institute of Neurological Disorders and Stroke
1/04/13 → 30/09/19

Dietary targeting of dihydrolipoamide dehydrogenase for stroke tolerance
Forster, M., Yan, L. & Yan, L.
1/04/13 → 30/09/19

Dietary Targeting of Dihydrolipoamide Dehydrogenase for Stroke Tolerance
Forster, M., Huang, R. & Sumien, N.
NINDS: Neurological Disorders & Stroke
1/04/13 → 31/03/18

Effects of Aging on Blood Vessels in the Cerebellar Vermis
Jin, K., Forster, M. & Sumien, N.
NIA: National Institute on Aging
1/04/19 → 31/01/21

ETHANOL AND AGE ASSOCIATED COGNITIVE DECLINE
Forster, M.
National Institute on Alcohol Abuse and Alcoholism
29/09/94 → 31/08/98

ETHANOL AND AGE ASSOCIATED COGNITIVE DECLINE
Forster, M.
29/09/94 → 31/08/98

Evaluation of Six Synthetic Tryptamines
Gatch, M. & Forster, M.
US Department of Justice
1/09/18 → 28/02/19

Evaluation of Synthetic Opioid Substances using the Drug Discrimination Assay
Gatch, M. & Forster, M.
US Department of Justice
1/08/17 → 31/07/18

Evaluation of Synthetic Opioid Substances using the Drug Discrimination Assay
Gatch, M. & Forster, M.
US Department of Justice

1/09/18 → 31/08/19

FY 13 Rodent Testing to Identify Pharma. for Substance Dependence
Forster, M.
National Institute on Drug Abuse

FY 13 Rodent Testing to Identify Pharma. for Substance Dependence
Forster, M.
National Institute on Drug Abuse

FY 13 Rodent Testing to Identify Pharma. for Substance Dependence
Forster, M.
National Institute on Drug Abuse

High-Resolution Tandem Mass Spectrometer for Advanced Biomolecular Research
Prokai, L., Forster, M. & Cheng, Y. (.
Intramural Research(UNTHSC)
27/01/17 → 31/01/18

IGF::OT::IGF: Base Award for Using Rodent Behavioral Models to Identify Substance Abuse Pharmacotherapies
Forster, M.
National Institute on Drug Abuse

IMMUNOLOGIC CORRELATES OF MEMORY DECLINE
Forster, M. & Forster, M.
National Institute on Aging, National Institutes of Health
31/12/89 → 30/06/93

IMMUNOLOGIC CORRELATES OF MEMORY DECLINE
Forster, M.
1/01/90 → 1/01/90

IMMUNOLOGIC CORRELATES OF MEMORY DECLINE
Forster, M. & FORSTER, M.
1/01/90 → 30/06/93

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

Mechanisms of Carisoprodol Abuse
Forster, M., Prokai, L., DILLON, G. & DILLON, G.
1/07/09 → 31/05/14

Mechanisms of Cognitive Decline During Aging
Forster, M., SIMPKINS, J., Singh, M., Koulen, P., SUMIEN, N., DILLION, G., SIMPKINS, J., Koulen, P., SUMIEN, N., DILLION, G. & FORSTER, M.
National Institute on Aging
30/09/03 → 29/02/16

Mechanisms of Cognitive Decline During Aging - Core A
Forster, M.
NIA: National Institute on Aging
1/03/13 → 29/02/16

Mechanisms of Cognitive Decline During Aging - Core B
Sumien, N. & Forster, M.
NIA: National Institute on Aging
1/03/13 → 29/02/16

Mechanisms of Cognitive Decline During Aging - Project 1
Forster, M., Sumien, N. & Yan, L.
NIA: National Institute on Aging
1/03/13 → 29/02/16

Novel Mechanistic Targets of Steroid Hormones in the Brain - Core B
Forster, M., Shetty, R., Yang, S., Liu, R. & Sumien, N.
NIA: National Institute on Aging
1/12/12 → 30/11/18

POTENIAL COCAINE TREATMENT MEDICATIONS
Forster, M.
30/09/93 → 30/09/97

Predoctoral Training in the Neurobiology of Aging
Forster, M., Sumien, N., Singh, M., SIMPKINS, J., SINGH, M., FORSTER, M., SUMIEN, N., Simpkins, J. W., FORSTER, M. & SUMIEN, N.
National Institute on Aging
1/05/02 → 30/04/22

Rodent Drug Discrimination &Locomotor Activity Testing
Forster, M.
National Institute on Drug Abuse

Rodent Drug Discrimination &Locomotor Activity Testing
Forster, M.
National Institute on Drug Abuse

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

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

ROLE OF MITHOCHONDRIAL ERB IN NEURONAL VULNDERABILITY TO NEUROTOXIC STRESS
Singh, M., SIMPKINS, J., Koulen, P., Forster, M., Prokai, L. & ALLERAND, D.
National Institute on Aging
1/01/01 → 30/11/18

SMALL INSTRUMENTATION PROGRAM
Forster, M.
National Heart, Lung, and Blood Institute
1/01/90 → 1/01/90

SMALL INSTRUMENTATION PROGRAM

Forster, M.
1/01/90 → 1/01/90

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Forster, M., LINDBLAD, R., NA, N., PALMER, C. N. P., FAN, X., HAYASHI, S., ,, ELSOHLY, M., TIMMERMAN, C., Huang, Y., VANVELDHUISEN, P., LE CLERC, F., TISCHFIELD, J., HINES, J., BEARDSLEY, P., MITCHELL, J., MESSERSMITH, D., HARRIS, L., BASSIN, G., Huang, Y., BAURLEY, J., PARKINSON, A., TISCH, D., DAVIS, K., LANGE, D., PANTIN, H., ENICHEN, D., BROWN, S., VANHELDHUISEN, P., THOMAS, B., STELTER, R., Zhang, X., LANDIS, R., DARMANJIAN, S., TANNER, B., HANINA, A., CHERTOFF, D. R., RICKMAN, W., VINCE, B., C, P., TARTER, B., ,, ,, ,, ,, ,, PUTNAM, S., HOLTZ, K., BERKA, C., FEIN, G., WOOLWINE, F., DRAINE, S., WAI LEE, M., LUCHANSKY, W., KYNOR, D., SCULL, T., ,, ,, ,, ,, ,, RANSOM, J., KUNITZ, S., HARRIS, L., YATES, T., PARANJPE, M., VANVELDHUISEN, P., BROWN, S., ELSOHLY, M., HAYASHI, S., X, HOOD, R., HOOD, R., TISCHFIELD, J., GERRY, N., Huang, Y., CUCCA, F., THOMAS, B., HINES, J., BEARDSLEY, P., BAURLEY, J., SANCHEZ, R., GREENBERG, D., VANHELDHUISEN, P., LINDBLAD, R., PARKINSON, A., PANTIN, H., LANGE, D., ,, RICKMAN, W., TISCH, D., PUTNAM, S., SONG, J., WOOLWINE, F., UNKNOWN, U., KEMNITZ, J., HOOD, R., X, CONVER, M., WHITE, S. W., HOOD, R., HOOD, R., BAUGHMAN, K., BAUGHMAN, K., BAUGHMAN, K., ,, X, TARN, C., ,, ,, PRAKASH, S., PARK, N., TANNER, B., SARANGAPANI, S., KOREY, A., Huang, Y., XINPING, F., BRUE, V., NANDA, J., WU, C., DWEIK, B., DELRAHIM-HOWLET, K., KANTHI, H., YUAN, M. J., OBERMAYER, J., LANDIS, R., CARROLL, I., ,, MURTY, R., HANINA, A., XIE, X. S., STOCK, H., YEAKLEY, J., LU, J., TANG, K., HENSLEY, P., MCDONOUGH, P., COLLAMORE, J., X, X, X, ,, X, MOSS, N., YOUNG, S., BRAY, K., PRICE, C., ANDERSON, P., COLLAMORE, J., LEUNG, V., CLEMONS, T., RODGERS, A., ELSOHLY, M., VANHELDHUISEN, P., BROOKS, L., THOMAS, B., CARROLL, I., GERRY, N., PARANJPE, M., HARRIS, L., DUNNE, A., CUCCA, F., BROWN, S., STOCK, H., LINDBLAD, R., Huang, Y., RICKMAN, W., CLEMONS, T., MURTY, R., WU, C., WOOLWINE, F., PARK, N., HENSLEY, P., KYNOR, D., YEAKLEY, J., NESBETH, Y. C., SCHWARTZ, E., PARAMESWARAN, K., TANG, K., MORROW, A., WHITE, W., ZIELKE, R., SZENTENDREI, T., WONG, D., UNKNOWN, U., FRANKLIN, C., WHITE, W., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMIN, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., LIPPA, A., SIZEMORE, J., HINES, J., OBERMAYER, J., BRAXTON, K., GREEN, C., GREEN, C., GREEN, C., LEE, M., CARNES, C., CHERTOFF, D., BERGMAN, J., GREENBERG, D., CAPLAN-MEVORAH, R., NG, H., JYOTIRMAYA, N., EVERS, K., BEARDSLEY, P., SANCHEZ, R., NA, N., LAWSON, J., WILLS, P., ABANTO, M., FRANKLIN, R., WOLFE, G., ARALDI, G., MARTIN, W., DUDDY, S., JOHNSON, G., SISCO, J., ARALDI, G., LAWSON, J., SISCO, J., ,, VINCE, B., PIENTA, A., BURAS, W., MOLINA, D., LANGE, D., Huang, Y., VANVELDHUISEN, P., KOREY, A., MOODY, P. D. ,. D., HAYASHI, S., TISCHFIELD, J., KRYSTAL, A., ELSOHLY, M., STOCK, H., CLEMONS, T., HARRIS, L., BERGMAN, J., CAPLAN-MEVORAH, R., MURTY, R., PIENTA, A., Huang, Y., PARANJPE, M., MOLINA, D., SANCHEZ, R., BEARDSLEY, P., DUDDY, S., KUNITZ, S., WALKER, R., PASCAL, J., SILINSKI, P., ,, HARTLEY, C., HERR, K., HOGANS, B., NG, H., FISHER, T., BESCH-WILLIFORD, C., FISHER, T., SHUGARTS, P., EDELEN, M., KELLY, M., KITZMAN, D., WESTON, J., SATAPATHY, G., NG, H., DAMON, J., TAUBEN, D., SPALLEK, H., LEE, M., ANTON, M., BELLINGER, J., EVERS, K., SCHUMACHER, M., LEVESQUE, D., LINDBLAD, R., MANWORREN, R., MUELLER, M., YUAN, M., FARRAR, J., SAHLER, O. J., MAHMOUD A., E., SHAEFER, J., BUCKLEY, D., THOMAS, B., DECHARMS, C., TIEN, A., MYERS, D., HERNDON, C., BASSIN, G., HARRIS, D., EZZELLE, J., ANNE, G., FRANKLIN, R. B., JOHNSON, G., RANDY, H., WOLFE, G., LAWSON, J., ARALDI, G. L., MARTIN, W., SISCO, J., DUDDY, S., WILLS, P., HANSEN, K., HANSEN, K., WINCHELL, G., ROMERO, D., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KURMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., FORSTER, M., FORSTER, M. & KVALE, E.
National Institute on Drug Abuse

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Forster, M., Forster, M., LINDBLAD, R., PALMER, C. N. P., HAYASHI, S., ,, ELSOHLY, M., Huang, Y., VANVELDHUISEN, P., TISCHFIELD, J., HINES, J., BEARDSLEY, P., MITCHELL, J., HARRIS, L., Huang, Y., PARKINSON, A., TISCH, D., DAVIS, K., LANGE, D., PANTIN, H., BROWN, S., VANHELDHUISEN, P., THOMAS, B., RICKMAN, W., VINCE, B., ,, ,, ,, ,, ,, PUTNAM, S., WOOLWINE, F., ,, ,, ,, ,, RANSOM, J., KUNITZ, S., HARRIS, L., YATES, T., PARANJPE, M., VANVELDHUISEN, P., BROWN, S., ELSOHLY, M., HAYASHI, S., HOOD, R., TISCHFIELD, J., GERRY, N., Huang, Y., CUCCA, F., THOMAS, B., HINES, J., BEARDSLEY, P., VANHELDHUISEN, P., LINDBLAD, R., PARKINSON, A., PANTIN, H., LANGE, D., ,, RICKMAN, W., TISCH, D., PUTNAM, S., SONG, J., WOOLWINE, F., UNKNOWN, U., KEMNITZ, J., HOOD, R., X, CONVER, M., WHITE, S. W., HOOD, R., HOOD, R., BAUGHMAN, K., BAUGHMAN, K., BAUGHMAN, K., X, TARN, C., ,, ,, PRAKASH, S., PARK, N., Huang, Y., XINPING, F., WU, C., DELRAHIM-HOWLET, K., KANTHI, H., CARROLL, I., MURTY, R., STOCK, H., X, ,, X, PRICE, C., LEUNG, V., COLLAMORE, J., CLEMONS, T., ,, ELSOHLY, M., VANHELDHUISEN, P., BROOKS, L., THOMAS, B., CARROLL, I., GERRY, N., PARANJPE, M., HARRIS, L., DUNNE, A., CUCCA, F., BROWN, S., STOCK, H., LINDBLAD, R., Huang, Y., RICKMAN, W., CLEMONS, T., MURTY, R., WU, C., WOOLWINE, F., PARK, N., WHITE, W., ZIELKE, R., FRANKLIN, C., WHITE, W., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMIN, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., SIZEMORE, J., HINES, J., BRAXTON, K., GREEN, C., GREEN, C., GREEN, C., BERGMAN, J., CAPLAN-MEVORAH, R., NG, H., BEARDSLEY, P., ,, VINCE, B., PIENTA, A., MOLINA, D., LANGE, D., Huang, Y., VANVELDHUISEN, P., MOODY, P. D. ,. D., HAYASHI, S., TISCHFIELD, J., KRYSTAL, A., ELSOHLY, M., STOCK, H., CLEMONS, T., HARRIS, L., BERGMAN, J., FORSTER, M., CAPLAN-MEVORAH, R., MURTY, R., PIENTA, A., Huang, Y., PARANJPE, M., MOLINA, D., BEARDSLEY, P., KUNITZ, S., Huang, Y., WALKER,

R., PASCAL, J., SILINSKI, P., ,, HARTLEY, C., HERR, K., HOGANS, B., NG, H., FISHER, T., BESCH-WILLIFORD, C., FISHER, T., SHUGARTS, P., EDELEN, M., WESTON, J., KVALE, E., NG, H., TAUBEN, D., SPALLEK, H., SCHUMACHER, M., LINDBLAD, R., MANWORREN, R., MUELLER, M., FARRAR, J., SAHLER, O. J., MAHMOUD A., E., SHAEFER, J., BUCKLEY, D., THOMAS, B., HERNDON, C., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M., KURMMINS, M., KRUMMINS, M., KRUMMINS, M., KRUMMINS, M. & KRUMMINS, M.

Training in the Neurobiology of Aging and Alzheimer's Disease
Sumien, N. & Forster, M.
NIA: National Institute on Aging
1/05/19 → 30/04/24

Training in the Neurobiology of Aging and Alzheimer's Disease
Sumien, N. & Forster, M.
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Training in the Neurobiology of Aging and Alzheimer's Disease
Singh, M., Forster, M., Sumien, N., SIMPKINS, J., Forster, M. & Sumien, N.
National Institute on Aging
1/05/02 → 30/04/22

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