

Dipesh CHAUDHURY
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Research Interest Understanding the link between mood, circadian rhythms and sleep-wake cycle.

Education

1995-1999 Ph.D., Open University, Department of Biology UK
Title: *Effects of passive avoidance training on calcium flux in chick forebrain*
Advisor: Steven Rose

1990 - 1994 BSc. (Hons) in Toxicology and Pharmacology
University of London, UK-2(1)

Professional Experience

2015-present **Assistant Professor** Program in Biology
New York University Abu Dhabi (NYUAD), Abu Dhabi, UAE

2010-2014 **Associate Scientist**, Department of Pharmacology
Icahn school of medicine at Mount Sinai New York, U.S.A
Advisor: Ming-Hu Han

2007-2010 **Post-Doctoral Associate**, Department of Neurobiology and Behavior
and Emotional Brain Institute, Nathan Kline Institute for Psychiatric Research,
Cornell University, NY, USA
Advisor: Christian Linster and Donald Wilson

2004-2007 **Post-Doctoral Fellow** INCM-Institute de Neurosciences Cognitive de la
Mediterranee, CNRS-Universite de la Mediterranee, Marseille, France
Advisor: Driss Boussaoud

1999-2004 **Post-Doctoral Fellow**, Department of Psychiatry and Biobehavioral Sciences,
University of California at Los Angeles, California, U.S.A.
Advisor: Christopher. S. Colwell

Professional Service

NYU Abu Dhabi

- 2020 Part of contract review committee for 2 lectures in Biology at NYUAD (Bakiza Noutsi and Ahmed Afzal).
- 2019 Search committee for Vice-Provost Graduate Studies
Part of Performance Review Committee for Biology Instructor Dina Al-Khairy
- 2017 Organizing committee: NYU Biomedical and Biosystems Conference in NYUAD. Specifically helped to plan the Neuroscience session, invited speakers for the Neuroscience session, Chaired the Neuroscience session.
- 2017 I have been involved in interviewing prospective graduate students.
- 2015-present NYUAD Environmental Health and Safety Committee (ADHMS), Biology Representative.
- 2015-present Participated in a number of events for the candidate weekend. Specifically, I: (i) attended the academics fair to answer questions about the Biology program, (ii) had one-one conversations with the candidates, (iii) gave sample course lectures in Biology and (iv) attended the closing dinner in order to converse with different prospective students.
- 2016-present Invited and hosted international speakers for our Biology seminar series.
- 2016-2017 I have been involved in interviewing prospective teaching assistant candidates.
- 2016-2017 I have been involved in interviewing prospective faculty candidates.
- 2016 Together with other faculty wrote up a working text describing the scientific mission for a proposed Center for Cognitive and Brain Sciences at NYUAD.
- 2015 Academic Judge for the Sheikh Mohamed bin Zayed scholarship program at NYUAD.

Community Service

- 2019 Mentored two 6th form Cranleigh students for research 2-month work experience
- 2017-2018 Gave public lecture on sleep and mood disorders as part of NYUAD institute talk series.

Mentored one 6th form student from Cranleigh School who is interested in a career in Neuroscience Research and / Or Medicine
- 2016-2017 Served as judge at the Undergraduate Research Conference hosted by Abu Dhabi University.
- 2015-2016 Mentored a 6th form student from Cranleigh school who was doing a Duke of Edinburg award

Reviewer Activity:

Journal reviews (ongoing/ 5 per year):

Regulatory Peptides, Journal of Neurophysiology, Frontiers in Behavioral Neuroscience, International Journal of Developmental Neuroscience, Scientific Reports, Oncotarget, Biological Psychiatry, Journal of Affective Disorder, Journal of Neuroscience Research

Grant:

2017 Human Frontiers Science Program (HFSP).
2018 Strasbourg Institute for Advanced Study

Media

2020

Interview by Khaleej Times Weekend Magazine
Interview by Zahratalkhaleej

2019

Interview by Gulf News on the concept of circadian rhythms and jet-lag

Interview by NYUAD outreach on the concept of jet-lag

<https://nyuad.nyu.edu/en/research/impact/our-research/2019/time-the-solution-to-jetlag.html>

Interview by the ALBA network (www.alba.network) on the promotion of equality and diversity in the brain sciences

<https://m.youtube.com/watch?v=BrmjCNpY6-I>

2018

Interviewed by Efecto Naim a TV-documentary style show on politics, economics, technology on Colombian TV news network NTN24

<https://www.youtube.com/watch?v=hDeoSW6vZ64>

Volunteered my time to act in a Mockumentary directed by NYUAD film department faculty Scandar Copti. I acted as a Scientist working on drug development. The Mockumentary called Affix and was shown at the Bet-Hagefen Gallery in Israel in May 2018.

<https://www.youtube.com/watch?v=7EbAoYCATpk&feature=youtu.be>

2016

Interviewed by Mad Science for my work at NYUAD on mood disorders, circadian rhythms and sleep.

<https://www.youtube.com/watch?v=qRTj1BeYAbw>

2012

Interviewed by National Public Radio (NPR) for work on dopamine and role in mood disorders.

Quoted in Magazines: Wired Magazine, Discover, Scientific American, National Geographic, Science News and Forbes.

Funding

Funded:

1. "Gene expression in circadian neural networks" 2017-2021
Awarded from The Centre for Genomics and Systems Biology, NYUAD. (\$150,000/Year)
Investigate molecular mechanisms driving rhythmic activity in two neuronal populations in the suprachiasmatic nucleus (SCN).
Role: Co-P.I. with Prof. Justin Blau
2. "Sleep Less Smile More: Understanding the Cellular Mechanism of Sleep Deprivation Induced Rapid Reversal of Depression" 2016-2018.
Awarded by The Al Jalila Research Foundation (AED 300,000 = \$75,000 Approx).
Investigate neurophysiological changes in neural circuits linking mood, circadian and sleep-wake rhythms following sleep deprivation induced reversal of depression.
Role: P.I.
3. "Neural Circuit Investigation into Sleep Deprivation Induced Rapid Reversal of Depression" 2016-2017.
Awarded from the University Research Challenge Fund – NYU. (\$10,000).
Investigate changes in VTA neuronal projection activity following sleep deprivation induced reversal of depression
Role: P.I.
4. "Neural Circuit Investigation into Sleep Deprivation Induced Rapid Reversal of Depression" 2016-2017.
Awarded from the NYUAD Research Enhancement. (\$40,000).
Investigate cellular and molecular changes in neural projections linking the suprachiasmatic nucleus (circadian clock), to the lateral habenula (mood regulator) and laterodorsal and pedunculo-pontine tegmentum nuclei (REM sleep regulator) in mice model of depression.
Role: P.I.
5. "Neural Circuit Investigations into the Rapid-Reversal Mechanisms of Depression Following Sleep Deprivation" 2015-2017.
Awarded from the NARSAD Young Investigator Award. (\$65,000).
Investigate neurophysiological changes in neural circuits linking mood, circadian and sleep-wake rhythms in a mouse model of depression.
Role: P.I.

Pending:

None at present

Not Funded:

1. Effects of Depression-like Behaviour on Working Memory. 2018-2019. Research Enhancement Fund (REF) Program. (\$50,000)
Role: Co-P.I. with Dr. Kartik Sreenivasan
2. Effects of Stress on Mood, Circadian Rhythms and Sleep/Wake Cycles", 2017-2019. Abu Dhabi Educational Council Award for Research Excellence – AARE. (AED 300,000 = \$75,000 Approx).
Investigate effects of stress and the subsequent expression of depression (in a mouse model) on cellular and molecular mechanisms that regulate homeostatic sleep.
Investigate effects of stress and depression-like behaviours on homeostatic sleep using in-vivo electrophysiological techniques.
Role: P.I.

3. "Cellular and Molecular Investigations into Novel Antidepressant Treatment". 2016-2018.
Abu Dhabi Educational Council – ADEC. (AED 400,000 = \$110,000 Approx).
Role: Co-P.I. with Dr. Piergiorgio Percipalle
4. "What neural circuits reverse depression after sleep deprivation?" 2015-2016.
New York University Whitehead Fellowship (\$30,000).
Role: P.I.
5. "Neural Circuit Investigations into the Rapid Reversal Mechanisms of Depression Following Sleep Deprivation" 2015-2018. Searle Scholars Program (\$100,000).
Role: P.I.
6. "Investigations into Circuit Mechanisms of Rapid Reversal of Depression Following Sleep Deprivation", 2015-2018. IMHRO Rising Star Research Award (\$250,000).
Role: P.I.
7. "Linking Sleep and Depression in an Animal Model of Chronic Social Defeat" 2015-2016.
The AXA Research Fund for Post-Doctoral Fellows (Euros 130,000).
Role: P.I.

Annotated list of publications

I indicate my contribution to each manuscript using the following codes: A = analysis; E = experimental implementation; F = funding; I = experimental or conceptual ideas; W = writing or critical editing.

The number of citations as provided by Google scholar is indicated for each article.

Google scholar: citation = 2382, h-index = 20, i10-index=22 as of 1st December 2017

Scopus: citation = 1715, h-index = 18 as of 1st December 2017

Peer reviewed

[24] Isakovic J, Dobbs-Dixon I, **Dipesh Chaudhury** and Mitrecic D (2018). Modeling of inhomogeneous electromagnetic field in the nervous system: a novel paradigm in understanding cell interactions, disease etiology and therapy. *Scientific Reports*, 8; 12909.

[23] Hongxing Zhang, **Dipesh Chaudhury**, Alexander R. Nectow..... & Ming-Hu Han (2018). Alpha1 and beta3 adrenergic receptor-mediated mesolimbic homeostatic plasticity confers resilience to social stress in susceptible mice. *Biological Psychiatry*, 18; 31818.

[22] Barbara Juarez, Carole Morel, Stacy Ku.... **Dipesh Chaudhury**.... & Ming-Hu Han (2017). Midbrain circuit regulation of individual alcohol drinking behaviors in mice. *Nat. Communications*, December 20; 8(1):2220 [A, E, I]

We used electrophysiological approaches to show that low alcohol drinking mice exhibited low midbrain dopamine neural activity compared to high alcohol drinking mice. Furthermore, by optogenetically activating midbrain dopamine cells projecting to the nucleus accumbens (part of the reward pathway), in low alcohol drinking mice we were able to induce low alcohol drinking behaviour. This is one of the first studies to: (i) identify the neurophysiological mechanism in midbrain dopamine neurons that regulate alcohol drinking behaviour and (ii) show reversal of high alcohol drinking to low alcohol drinking behaviour in a rodent model.

[21] Golden, Mitra Heshmati, Meghan Flanigan....**Dipesh Chaudhury**.... & Scott J. Russo (2016). Basal forebrain projections to the lateral habenula modulate aggression reward. *Nature*, Jun 30; 534(7609): 688-92. [A, E, I, W] [24 CITATIONS]

This article is the first to describe the role of the basal forebrain to lateral habenula projection in regulating valence of inter-male aggressive behaviour. We used a combination of behavioural optogenetics and electrophysiological techniques to show a direct correlation between basal-forebrain to lateral habenula circuit activity and aggressive behaviour.

[20] Allyson Friedman, Barbara Juarez, Stacy Ku....**Dipesh Chaudhury**.... & Ming-Hu Han (2016). KCNQ channel openers reverse depressive symptoms via an active resilience mechanism. *Nat. Communication*, May 24; 7:11671. [A, E, I] [14 CITATIONS]

This paper describes a putative mechanism by which an FDA-approved drug retigabine acts as an antidepressant via opening of potassium channels.

[19] Bagot RC, Parise EM, Peña CJ....**Dipesh Chaudhury**....& Nestler EJ (2015). Ventral hippocampal afferents to the nucleus accumbens regulate susceptibility to depression. *Nat. Communications*, 8: 8062. [A, E, I, W] [67 CITATIONS]

[18] Koo JW, Lobo MK, **Dipesh Chaudhury**....& Nestler EJ (2014). Loss of BDNF Signaling in D1R-Expressing NAc Neurons Enhances Morphine Reward by Reducing GABA Inhibition. *NEUROPSYCHOPHARMACOLOGY*. 2014; OCT; 39 (11): 2646-53. [A, E, I, W] [19 CITATIONS]

[17] Friedman AK, Walsh JJ, Juarez B....**Dipesh Chaudhury**....& Han MH (2014). Enhancing depression mechanisms in midbrain dopamine neurons achieves homeostatic resilience. *SCIENCE*, APR 18; 344 (6181): 313-9. [E, I] [156 CITATIONS]

This article reports differential changes in ionic current activities in ventral tegmental area dopamine cells in mice exposed to social defeat stress. Specifically mice susceptible to social defeat stress exhibited increased moderate increases in hyperpolarization-activated (I_h) and potassium (K⁺) currents while stress resilient (non-depressed mice) exhibited robust increases in I_h and K⁺ currents. These differences in homeostatic responses in the ventral tegmental area dopamine cells in stress- resilient and susceptible mice show mechanisms of homeostatic plasticity leading to stress resilience.

[16] Ian Maze, **Dipesh Chaudhury**, David M. Dietz....& Eric J. Nestler (2014). G9a influences neuronal subtype specification in striatum. *NATURE NEUROSCIENCE*, Apr; 17 (4):533-9. [A, E, I, W] [35 CITATION]

This article investigates the effect of cocaine on histone methyltransferase G9a in dopamine-1 and dopamine-2 subtypes striatal cells. Cocaine administration was shown to repress G9a expression in D1 and D2 dopamine cells. Furthermore, G9a was shown to regulate transcription of other factors in D1 dopamine cells. G9a knock out in D2 dopamine cells was shown to induce D1-like electrophysiological phenotype. This paper highlights a novel role for G9a in contributing to neural phenotype and also in suggesting critical function of cell-type specific histone methylation patterns in the regulation of behavioural responses to environmental stimuli.

[15] Jessica J. Walsh, Allyson K. Friedman, Haosheng Sun....**Dipesh Chaudhury**.... & Ming-Hu Han (2014). Stress gates neural activation of BDNF in the mesolimbic reward pathway. *NATURE NEUROSCIENCE*, Jan; 17(1):27-9. [E, I] [82 CITATIONS]

This article is the first to describe a possible mechanism by which increased BDNF signalling in the nucleus accumbens encodes for stress susceptibility in mice exposed to social stress. Using a combination of social stress, optogenetics and molecular analysis this study found that stress gating of BDNF signalling is mediated by corticotrophin-releasing factor (CRF) acting the nucleus accumbens.

[14] Mary Kay Lobo, Samir Zaman, Diane Damez Werno.... **Dipesh Chaudhury**.... & Eric Nestler (2013). Delta-FosB Induction in Striatal Medium Spiny Neuron Subtypes in Response to Chronic Pharmacological, Emotional, and Optogenetic Stimuli. THE JOURNAL OF NEUROSCIENCE, Nov 20;33(47):18381-95. [A, E] [98 CITATIONS]

[13] Ramesh Chandra, Jeffrey Lenz, Amy M. Gancarz, **Dipesh Chaudhury**...& Mary Kay Lobo (2013). Optogenetic inhibition of D1R containing nucleus accumbens neurons alters cocaine cytoskeleton regulator Tiam1. FRONTIERS IN MOLECLAR NEUROSCIENCE, May 24; 6:13. [A, E, W] [44 CITATIONS]

[12] Pamela J. Kennedy, Jian Feng, A.J. Robison....**Dipesh Chaudhury**.... & Eric J. Nestler (2013). Class I HDAC inhibition blocks cocaine-induced plasticity through targeted changes in histone methylation. NATURE NEUROSCIENCE, Apr; 16(4): 434-40. [A, E, W] [90 CITATIONS]

[11] **Dipesh Chaudhury**, Walsh JJ, Friedman AK....& Han MH (2013). Rapid regulation of depression-related behaviours by control of midbrain dopamine neurons. NATURE, JAN 24; 493(7433): 532-6. [A, E, I, W] [446 CITATIONS]

This article is the first to directly show projection specific differences in encoding for susceptibility to social defeat stress. By using a multi-technique approach ranging from behavioural, optogenetics and electrophysiology, this study showed that increased activity of ventral tegmental neurons projection to nucleuc accumbens encodes for depression-like behaviour while decreased activity of ventral tegmental neurons projection to medial prefrontal cortex encodes for depression-like behaviour.

[10] Koo JW, Mazei-Robison MS, **Dipesh Chaudhury**....& Nestler EJ (2012). BDNF is a negative modulator of morphine action. SCIENCE, OCT 5; 338(6103): 124-8. [A, E, I, W] [103 CITATIONS]

[9] Barnes DC, Chapuis J, **Dipesh Chaudhury** & Wilson DA (2011). Odor fear conditioning modifies piriform cortex local field potentials both during conditioning and during post-conditioning sleep. PLOS ONE, MAR 23; 6(3): E18130. [A, E] [33 CITATIONS]

[8] Lobo MK, Covington HE 3rd, **Dipesh Chaudhury**....& Nestler EJ (2010). Cell type-specific loss of BDNF signaling mimics optogenetic control of cocaine reward. SCIENCE, OCT 15; 330(6002): 385-90. [A, E, I, W] [460 CITATIONS]

This paper is the first to show distinct roles of dopamine-1 (D1) and dopamine-2 (D2) neurons cells in the nucleus accumbens in encoding for cocaine reward. Experiments using optogenetic and electrophysiological approaches found that deletion of TrkB, the BDNF receptors, in D1 or D2 neurons had opposite affects to cocaine reward. Findings from these studies provide some insight into the molecular control of D1 and D2 neuronal activity to cocaine reward.

[7] Dipesh Chaudhury, Laura Manella, Adolfo Arellanos, Olga Escanilla, Thomas A. Cleland & Christiane Linster (2010). Olfactory bulb habituation to odor stimuli. BEHAVIORAL NEUROSCIENCE, 124 (4) 490-499. [A, E, I, W] [34 CITATIONS]

This article describes experiments to investigate temporal dynamics of behavioural and neurophysiological adaptations to repeated odour stimulations. Specifically, behavioural habituations to repeated odour presentations on longer time scales were shown to have a neuronal correlate in the olfactory bulb. Mitral cell activity was shown to habituate to repeated odorant stimulation with 5min intertrial intervals with a time course comparable to behavioural adaptation. Furthermore, this mechanism of adaptation was shown to be NMDA dependant.

[6] Dipesh Chaudhury, Olga Escanilla, & Christiane Linster (2009). Bulbar acetylcholine enhances neural and perceptual odor discrimination. THE JOURNAL OF NEUROSCIENCE, JANUARY 7, 29(1): 52–60. [A, E, I, W] [80 CITATIONS]

This article demonstrated that increasing cholinergic signalling in the olfactory bulb enhanced olfactory discrimination of similar odorants. Specifically, administration of anticholinesterase into the olfactory bulb enhanced the difference in neural coding of mitral cells to similar odorants.

[5] Dipesh Chaudhury, Dawn H Loh, Joanna M Dragich, Arkady Hagopian & Christopher S Colwell (2008). Select cognitive deficits in vasoactive intestinal peptide deficient mice. BMC NEUROSCIENCE, 9:63. [A, E, I, W] [46 CITATIONS]

This article describes experiments investigating circadian rhythms in learning and memory in vasoactive-intestinal peptide knock out (VIP-KO) mice. VIP-KO mice exhibited normal acquisition and recall of fear-conditioned behaviour at 24hrs, but not at 48hrs post-training. Interestingly, these VIP-KO mice continued to express circadian rhythms in recall for fear conditioned training even though these mice exhibited arrhythmic wheel running activity. One mechanistic explanation for these findings suggests that the neuropeptide VIP regulates recall of learned behaviour and circadian rhythms of wheel running but may not play a role in circadian regulation of learned behaviours.

[4] Louisa M. Wang, Nanthia A. Suthana, **Dipesh Chaudhury**, David R. Weaver & Christopher S. Colwell (2005). Melatonin inhibits hippocampal long-term potentiation EUROPEAN JOURNAL OF NEUROSCIENCE, 22, 2231-2237. [A, E] [116 CITATIONS]

This article describes observations that the circadian hormone Melatonin inhibited synaptic plasticity at a concentration dependant manner. Furthermore, the inhibitory effects of melatonin were shown to occur via MT2-, but not MT1-, receptor-mediated regulation of adenylyl cyclase-protein kinase A pathway.

[3] Dipesh Chaudhury, Wang, LW & Colwell, CS (2005). **Circadian regulation of hippocampal long-term potentiation** JOURNAL OF BIOLOGICAL RHYTHMS, 20, 225-236 [A, E, I, W] [147 CITATIONS]

This article provides the first evidence for a role of rhythmic changes in synaptic plasticity in hippocampal tissue slices. In-vitro hippocampal recordings showed diurnal variations in induction and maintenance of LTP, where plasticity was greatest during mice subjective night compared to recordings from mice subjective day.

[2] **Dipesh Chaudhury** & Colwell, CS (2002). Circadian modulation of learning and memory in fear-conditioned mice. BEHAVIOURAL BRAIN RESEARCH, 133, 95-108. [A, E, I, W] [184 CITATIONS]

This article provides one of the first pieces of evidence that learning, recall and extinction of fear memory undergoes robust circadian rhythmicity. Specifically, mice trained on contextual and tone fear learning exhibited greatest acquisition and recall in the day compared to the night. Furthermore, this rhythmicity was observed in mice entrained to a light:dark cycle after which fear conditioned training and recall was performed in constant darkness.

[1] Salinska, E.J., **Dipesh Chaudhury**, Bourne, R.C. & Rose, S.P.R (1999). Passive avoidance training results in increased responsiveness of voltage and ligand-gated channels in chick synaptoneurosome. NEUROSCIENCE, 93(4): 1507-14 [A, E, I, W] [24 CITATIONS]

Reviews and Chapters

[7] Ja Wook Koo, **Dipesh Chaudhury**, Ming-Hu Han and Eric Nestler (2019) Role of Mesolimbic Brain-Derived Neurotrophic Factor in Depression. Biological Psychiatry, DOI: 10.1016

[6] Hongxing Zhang, **Dipesh Chaudhury**, Sarah Montgomery, Jun-Li Cao and Ming-Hu (2019). A key noradrenergic brainstem-mesolimbic circuit: promotion of resilience to social stress. Chronic Stress (Commentary)

[5] Basma Radwan, He Liu and **Dipesh Chaudhury** (2018). The role of dopamine in mood disorders and the associated changes in circadian rhythms and sleep-wake cycle. Brain Research, 18: 30597

[4] He Liu & **Dipesh Chaudhury** (2017). Understanding Mood Disorders Using Electrophysiology and Circuit Breaking. In Decoding Neural Circuit Structure and Function: Cellular Dissection Using Genetic Model Organisms. Chapter 14, Page 343-370. (Book Chapter - Springer International Publication) Editors: Arzu Celik and Mathias F. Wernet

[3] Basma Radwan, He Liu & **Dipesh Chaudhury** (2016). Regulation and modulation of depression-related behaviors: Role of Dopaminergic Neurons. In Dopamine and Sleep (Book Chapter-Springer) Editors: Jaime Monti, SR Pandi-Perumal and S. Chokroverty

[2] **Dipesh Chaudhury**, He Liu & Ming-Hu Han (2015). Neuronal Correlates of Depression CELLULAR AND MOLECULAR LIFE SCIENCE. 72: 4681-4920.

[1] Francis TC, **Dipesh Chaudhury** & Lobo MK (2014). Optogenetics: Illuminating the neural basis of rodent behavior. OPEN ACCESS ANIMAL PHYSIOLOGY, 6:33-51.

Presentations at Conference (*: students and post-docs, last 5 years) (# Presenter)

He Liu, Basma Radwan, Merima Sabanovich, Gloria Jansen & **Dipesh Chaudhury**. Effects of Social Stress on Circadian Rhythms and Sleep-Wake Cycle. Oral presentation by Dipesh Chaudhury at the 3rd NYU Biomedical and Biosystems Conference. Abu Dhabi, UAE. 12th Jan 2020.

He Liu, Basma Radwan, Merima Sabanovich, Gloria Jansen & **Dipesh Chaudhury**. Effects of Social Stress on Circadian Rhythms and Sleep-Wake Cycle. Oral presentation by Dipesh Chaudhury at the FENS Regional Meeting. Belgrade, Serbia. 11th July 2019

He Liu, Basma Radwan, Merima Sabanovich, Gloria Jansen & **Dipesh Chaudhury**. Effects of Social Stress on Circadian Rhythms and Sleep-Wake Cycle. Poster presentation by Dipesh Chaudhury at The 9th Federation of Asian and Oceanian Physiological Societies Congress in Kobe, Japan. May 2019.

He Liu, Basma Radwan, Merima Sabanovich, Gloria Jansen & **Dipesh Chaudhury**. Effects of Social Stress on Circadian Rhythms and Sleep-Wake Cycle. Poster presentation by Dipesh Chaudhury at The 2nd Munich Winter Conference on Stress. March 2019

Basma Radwan*, Gloria Jansen, Alvaro Yanez & Dipesh Chaudhury. Deficient Synaptic Homeostatic Mechanism of Sleep in Mice Exposed to Chronic Social Stress. Data Blitz. The 1st Meeting in Advances in Sleep and circadian Science. Clearwater, Florida, USA. February 2019

Basma Radwan He Liu, Basma Radwan, Merima Sabanovich, Gloria Jansen & **Dipesh Chaudhury**. Effects of Social Stress on Circadian Rhythms and Sleep-Wake Cycle. Poster presentation by Dipesh Chaudhury at The 9th Federation of Asian and Oceanian Physiological Societies Congress in Kobe, Japan. May 2019. , Gloria Jansen, Alvaro Yanez & **Dipesh Chaudhury**. Deficient Synaptic Homeostatic Mechanism of Sleep in Mice Exposed to Chronic Social Stress. Poster Presentation. The 1st Meeting in Advances in Sleep and circadian Science. Clearwater, Florida, USA. February 2019

He Liu, Basma Radwan, Merima Sabanovich, Gloria Jansen & **Dipesh Chaudhury**. Effects of Social Stress on Circadian Rhythms and Sleep-Wake Cycle. Oral presentation by Dipesh Chaudhury at the 14th International Symposium on Molecular Basis of Pathology and Therapy in Neurological Disorders in Warsaw, October 2018

He Liu, Merima Sabanovich & **Dipesh Chaudhury**. Effects of Social Stress on Circadian Rhythms and Sleep-Wake Cycle. Oral presentation by Dipesh Chaudhury at the annual meeting of the 5th Middle East Molecular Biology Congress in Jordan, October 2018.

Gloria Jansen**#, Basma Radwan and **Dipesh Chaudhury**. Modulation of homeostatic sleep dynamics by differential chronic stress response. Poster presentation at Federation of European Neuroscience (FENS) Meeting in Berlin, Germany, July 2018

Merima Šabanović**#, He Liu, and **Dipesh Chaudhury**. What it takes to be at the top: The complex interrelationship between chronic social stress and social dominance. Poster presentation at Federation of European Neuroscience (FENS) Meeting in Berlin, Germany, July 2018

Basma Radwan**#, Gloria Jansen, Reem Khalil and **Dipesh Chaudhury**. Deficient homeostatic sleep response in a mouse model of chronic social defeat stress. Poster presentation at Federation of European Neuroscience (FENS) Meeting in Berlin, Germany, July 2018

He Liu **#, Merima Šabanović, Qing Xu and **Dipesh Chaudhury**. Encoding a neural circuit mechanism underlying abnormal circadian rhythms in a mouse model of chronic social defeat. Poster presentation at Federation of European Neuroscience (FENS) Meeting in Berlin, Germany, July 2018

He Liu, Merima Sabanovich**#, Qing Xu, Basma Radwan & **Dipesh Chaudhury**. Encoding a neural circuit mechanism underlying abnormal circadian rhythms in a mouse model of chronic social defeat. Poster presentation at The NYUAD Post-doc Day at NYUAD, Abu Dhabi, UAE, December 2017.

He Liu, Basma Radwan, Merima Sabanovich*, Gloria Jansen* & **Dipesh Chaudhury**. Interplay between circadian rhythms, sleep and mood disorders. Oral presentation by Dipesh Chaudhury at the annual meeting of the 4th Middle East Molecular Biology Congress at Zayed University, Abu Dhabi, UAE, November 2017.

He Liu, Basma Radwan, Merima Sabanovich, Gloria Jansen & **Dipesh Chaudhury**. Mood disorders, circadian rhythms and sleep. Oral presentation by Dipesh Chaudhury at the 4th International Grande Dourados Neuroscience Symposium at the Medical School of the Federal University of Grand Dourados (Universidade Federal da Grande Dourados; UFGD) in Dourados, Brazil, October 2017.

He Liu, Basma Radwan, Merima Sabanovich* & **Dipesh Chaudhury**. Effects of stress on mood, neural activity, sleep and circadian rhythms. Poster presentation at the annual meeting of the 15th European Biological Rhythms Society Congress in Amsterdam, Holland, August 2017.

He Liu, Basma Radwan, Merima Sabanovich, Gloria Jansen & **Dipesh Chaudhury**. Neural circuits linking circadian rhythms, sleep and mood disorders. Oral presentation by Dipesh Chaudhury at the annual NYU Biomedical and Biosystems Conference at NYUAD, Abu Dhabi, UAE, April 2017.

Dipesh Chaudhury, Barbara Juarez*, Hongxing Zhang, Stacy Ku*, He Liu and Basma Radwan & Ming-Hu Han. Differential circuit regulation of depression-like behaviour. Oral presentation by Dipesh Chaudhury at the 46th annual Society for Neuroscience meeting in San Diego, USA, November 2016 (Presented data from Mount Sinai and my own lab at NYUAD).

He Liu, Basma Radwan, Merima Sabanovich, Gloria Jansen & **Dipesh Chaudhury**. Neural circuits regulating mood disorders. Oral presentation by Dipesh Chaudhury at the annual 4th Arab-American Frontiers of Science, Engineering and Medicine symposium at the Masdar Institute, Abu Dhabi, UAE, November 2016.

Basma Radwan, He Liu & **Dipesh Chaudhury**. Neural circuit investigation into sleep deprivation-induced rapid reversal of depression. Poster presentation at the 6th Annual Genomics and Systems Biology Conference at NYUAD, Abu Dhabi, UAE, February 2016.

Dipesh Chaudhury, Barbara Juarez*, Hongxing Zhang, Stacy Ku*, He Liu, Basma Radwan & Ming-Hu Han. Neural circuits and depression. Oral presentation by Dipesh Chaudhury at the 6th Annual Genomics and Systems Biology Conference at NYUAD, Abu Dhabi, UAE. February 2016.

Dipesh Chaudhury, Barbara Juarez*, Hongxing Zhang, Allyson Friedman, Jessica Walsh*, Stacy Ku* & Ming-Hu Han. Functional role of lateral habenula neurons projecting to ventral tegmental area in modulating susceptibility to social defeat stress. Poster presentation at the annual Society for Neuroscience, October 2013

Invited Presentations (last 5 years)

2020 - AMIST University

2019 - Bogazici University
- Graduate School of Medicine, The University of Tokyo, Japan
- University of Aalborg, Denmark
- University of Surrey, UK
- New York University
- Mount Sinai School of Medicine

2018 - Shanghai Renji Hospital, Shanghai, China
- Xuzhou Medical School, Xuzhou, China
- NYUAD Annual Research Conference

- 2017 - NYUAD Institute Public lecture, Abu Dhabi, UAE
2016 - Tech Tuesday at NYUAD, Abu Dhabi, UAE
- NYU Medical School Departmental Seminar, New York, USA

Collaborations

Prof. Gord Fishell (NYUAD/Harvard University)

We are utilizing novel viral vectors developed in the Fishell lab to label specific neural circuits for electrophysiological, molecular and optogenetics manipulations.

Dr. Piergiorgio Percipalle (NYUAD)

We are performing electrophysiological recordings in putative neural progenitor cells developed by the Percipalle lab. We are helping to confirm whether their putative cells express classical neural cell physiology.

Dr. Reem Khalil (American University of Sharjah)

Dr. Khalil is an expert in spine density imaging and will help analyse changes in spine density in brain regions regulating REM sleep and mood of mice exhibiting depression-like behaviours. This is part of our investigations into the effect of stress and depression-like behaviour on homeostatic sleep.

Prof. Justin Blau (NYU-NY)

Prof. Blau and I will investigate cellular and molecular changes in cells that regulate circadian rhythmicity in both the Drosophila and mice model system. Specifically Prof. Blau's group will investigate activity dependent molecular changes in clock and, downstream, non-clock cells in Drosophila. My group will investigate cellular and molecular mechanisms driving rhythmic activity in two neuronal populations in the suprachiasmatic nucleus (SCN).

Prof. Stephan Boissinot (NYUAD)

We have started collecting brain samples from different brain regions of depressed and non-depressed mice in order to perform RNASeq analysis of genes related to mood, circadian and sleep-wake rhythms. The Boissinot lab will use our RNAseq data to analyse the effects of mood on the profile of transposable elements. This form of analysis has not been attempted before so all findings will be novel.

Teaching

Undergraduate course

NYUAD

BIOL-AD 101 – Human Physiology (formerly known as Organismal Biology) (Fall 2015, 2016, 2017)
Co-Taught 25% of semester

BIOL-AD 140 – Behavioral and Integrative Science (Spring 2015, 2016, 2017)
Co-Taught 38% of class in 2015. Taught 100% of class in 2016. Co-taught 80% of class in 2017.

BIOL-AD 211 – Experimental Neurobiology (Fall 2015, 2016, 2017)
Developed the course alone. Taught 100% of class in 2015 and 2016. Co-Taught 80% of class in 2017

Mentoring

UNDERGRADUATES:

At NYUAD (* Capstone students)

Aleksa Petkovic (2019-Present), Marko Susic (2019-Present), Faisal Quadri (2019-Present), Salma Haniffa (2019-Present), Zerina Rahic (2019-Present), Vongai Mlambo (2017-2020), Mariam Anwar (2017-2020), Soaad Hammami (2017-2020), Imtiyaz Hariyani (2017-2019), Yazan Al-Ajilouni (2017-2019), Alvaro Yanez* (2017-2019), Hala Aqel* (2017-present). Mohammed Chaudry (2016-2017), Diego Kleinman (2016-present), Zsofia Sveiczler (2016-present), Merima Sabanovich* (2015-pre), Gloria Jansen* (2015-present),

Sharon Qui (2015-2017), Syeda Ali (2015-2017), Yoonhoo Chang (2016-2017), Jasmina Isakovic (2016-2017)

Non-NYUAD Students:

Aishha Al Hammadi (2018 – UAEU, Al Ain).

Ph.D. STUDENTS:

At Mount Sinai School of Medicine (2010-2014)

Barbara Juarez (2010-2014), Jessica Walsh (2010-2014), Stacy Ku (2012-2014)

POST-DOCTORAL FELLOWS:

At NYUAD (2015-present)

He Liu (2015-2018), Basma Radwan (2015-present), Priyam Narain (2018-present), Ashutosh Rastogi (2019-present)