Stanford



Nakul Aggarwal

Resident in Psychiatry and Behavioral Sciences

Bio

BIO

Nakul Aggarwal, MD, PhD, is a psychiatry resident on the research track at Stanford. He studies the mechanisms of neuroplasticity in very early development, with a focus on white matter and myelination, and how they can be engaged therapeutically — with the goal of not only treating but preventing psychiatric illness. Working across mice, nonhuman primates, and children, he combines multimodal neuroimaging with pharmacological repurposing and brain stimulation to identify when developing circuits are most tractable and whether intervening in those windows can shift the course of psychopathology. He completed his MD and PhD at the University of Wisconsin–Madison.

CLINICAL FOCUS

- Residency

HONORS AND AWARDS

- APA Scholars Program, American Psychiatric Association (2026)
- Biomedical Research Awareness Day (BRAD) Fellowship, American College of Neuropsychopharmacology & Americans for Medical Progress (2024–2025)
- Outstanding Scholar in Neuroscience Award Program (OSNAP), National Institutes of Health (2023)
- ACNP Travel Award, American College of Neuropsychopharmacology (2022)
- Mentorship Grant for Medical Students, American Academy of Child and Adolescent Psychiatry (2024)
- Alies Muskin Career Development Leadership Program (CDLP) Award, Anxiety & Depression Association of America (2022)
- Chair's Choice Travel Award, Society of Biological Psychiatry (2019)
- Medical Scientist Training Program Fellowship (NIH-funded), University of Wisconsin–Madison (2016–2025)
- Institutional National Research Service Award (T32), Training Program in Emotion Research, National Institute of Mental Health (2019–2021)
- Travel Award, International Society for Developmental Psychobiology (2019)
- Grace M. Parker Scholarship, Department of Psychiatry, University of Wisconsin–Madison (2025)
- Student Research Grants Competition Travel Award, University of Wisconsin–Madison (2022)
- President's Student Leadership and Service Award, University of Minnesota–Twin Cities (2015)

Publications

PUBLICATIONS

- **Individual-Level Associations Between White Matter Microarchitecture and Anxious Temperament in Infant Rhesus Macaques**
  Aggarwal, N., Puralewski, R., Moody, J., Oler, J., Roseboom, P., Tromp, D., Kalin, N.

SPRINGERNATURE.2024: 92-93

- **FUNCTIONAL CONNECTIVITY DURING THREAT PROCESSING AND ASSOCIATIONS WITH PSYCHOPATHOLOGY IN YOUTH: A TRANSLATIONAL FMRI STUDY**
  Grasser, L., Haller, S., Hansen, E., Stohr, G., Naim, R., Bui, H., Aggarwal, N., Kenwood, M., Williams, L., Kalin, N., Brotman, M.
  SPRINGERNATURE.2024: 390-391

- **A LONGITUDINAL CHARACTERIZATION OF DIMENSIONAL ANXIETY AND THE IMPACT OF COVID-19 IN PREADOLESCENT GIRLS**
  Aggarwal, N., Olson, C., Williams, L. E., Rosh, A., Koerten, H. R., Kalin, N.
  ELSEVIER SCIENCE INC.2024: S184

- **Evidence for Dynamic Relations During Early Development Between White Matter Microarchitecture and Anxiety in Children and Nonhuman Primates**
  Aggarwal, N., Puralewski, R., Williams, L., Moody, J., Oler, J., Tromp, D., Kalin, N.
  ELSEVIER SCIENCE INC.2024: S14

- **Sex-Specific Distributed White Matter Microarchitectural Alterations in Preadolescent Youths With Anxiety Disorders: A Mega-Analytic Study.** *The American journal of psychiatry*
  Aggarwal, N., Tromp, D. P., Blackford, J. U., Pine, D. S., Roseboom, P. H., Williams, L. E., Kalin, N. H.
  2024; 181 (4): 299-309

- **A preliminary study of the effects of an antimuscarinic agent on anxious behaviors and white matter microarchitecture in nonhuman primates.** *Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology*
  Aggarwal, N., Oler, J. A., Tromp, D. P., Roseboom, P. H., Riedel, M. K., Elam, V. R., Brotman, M. A., Kalin, N. H.
  2024; 49 (2): 405-413

- **Infant Nonhuman Primate White Matter Microstructure is Associated With Components of Trait-Like Anxiety**
  Aggarwal, N., Puralewski, R., Moody, J., Oler, J., Do Tromp, Kalin, N.
  SPRINGERNATURE.2023: 86

- **Reliability and Age-Related Effects on Neural Activation of a Novel Threat Neuroimaging Paradigm**
  Grasser, L., Haller, S., Hansen, E., Stohr, G., Naim, R., Bui, H., Aggarwal, N., Kenwood, M., Williams, L., Kalin, N., Brotman, M.
  SPRINGERNATURE.2023: 146

- **Prefrontal influences on the function of the neural circuitry underlying anxious temperament in primates.** *Oxford open neuroscience*
  Kenwood, M. M., Oler, J. A., Tromp, D. P., Fox, A. S., Riedel, M. K., Roseboom, P. H., Brunner, K. G., Aggarwal, N., Murray, E. A., Kalin, N. H.
  2023; 2

- **DREADD-mediated amygdala activation is sufficient to induce anxiety-like responses in young nonhuman primates.** *Current research in neurobiology*
  Mueller, S. A., Oler, J. A., Roseboom, P. H., Aggarwal, N., Kenwood, M. M., Riedel, M. K., Elam, V. R., Olsen, M. E., DiFilippo, A. H., Christian, B. T., Hu, X., Galvan, A., Boehm, et al
  2023; 5: 100111

- **Threat-induced cortisol is positively associated with white matter microarchitecture in infant rhesus monkeys**
  Aggarwal, N., Puralewski, R., Moody, J., Oler, J., Roseboom, P., Dean, D., Tromp, D., Kecskemeti, S., Alexander, A., Kalin, N.
  PERGAMON-ELSEVIER SCIENCE LTD.2023: S10

- **Dynamic longitudinal relations between regional brain metabolism and stress-related blood cortisol during the first year of nonhuman primate life**
  Puralewski, R., Oler, J., Aggarwal, N., Roseboom, P., Moody, J., Riedel, M., Elam, V., Kalin, N.
  PERGAMON-ELSEVIER SCIENCE LTD.2023: S11

- **Adapting the Behavioral 'Human Intruder Paradigm' to Probe Neural Threat Processing Across Species**
  Grasser, L., Haller, S., Taubert, J., Aggarwal, N., Hansen, E., Naim, R., Kenwood, M., Bui, H., Jeong, A., Williams, L., Kalin, N., Brotman, M.
  ELSEVIER SCIENCE INC.2023: S147

- **Assessing the Effects of Solifenacin, an Antimuscarinic Agent, on Anxious Behaviors and White Matter Microstructure in Non-Human Primates**
  Aggarwal, N.
  SPRINGERNATURE.2022: 7

- **Sex-Specific White Matter Microarchitectural Alterations in Preadolescent Youth With Anxiety Disorders**
  Aggarwal, N., Tromp, D., Pine, D., Williams, L., Kalin, N.
  SPRINGERNATURE.2022: 91-92

- **Longitudinal assessment of early-life white matter development with quantitative relaxometry in nonhuman primates.** *NeuroImage*
  Moody, J. F., Aggarwal, N., Dean, D. C., Tromp, D. P., Kecskemeti, S. R., Oler, J. A., Kalin, N. H., Alexander, A. L.
  2022; 251: 118989

- **A dynamic relation between whole-brain white matter microstructural integrity and anxiety symptoms in preadolescent females with pathological anxiety.** *Translational psychiatry*
  Aggarwal, N., Williams, L. E., Tromp, D. P., Pine, D. S., Kalin, N. H.
  2022; 12 (1): 57

- **Meeting the Moment: Addressing Barriers and Facilitating Clinical Adoption of Artificial Intelligence in Medical Diagnosis** *NAM Perspectives*
  Adler-Milstein, J., Aggarwal, N., Ahmed, M., Castner, J., Evans, B., Gonzalez, A., James, C., Lin, S., Mandl, K., Matheny, M., Sendak, M., Shachar, C., Williams, et al
  2022

- **Global Reductions in White Matter Integrity are Associated With Worsening Anxiety Symptoms in Preadolescent Girls**
  Aggarwal, N., Williams, L., Tromp, D., Kalin, N.
  SPRINGERNATURE.2021: 114-115

- **Spatiotemporal dynamics of nonhuman primate white matter development during the first year of life.** *NeuroImage*
  Aggarwal, N., Moody, J. F., Dean, D. C., Tromp, D. P., Kecskemeti, S. R., Oler, J. A., Alexander, A. L., Kalin, N. H.
  2021; 231: 117825

- **Advancing Artificial Intelligence in Health Settings Outside the Hospital and Clinic.** *NAM perspectives*
  Aggarwal, N., Ahmed, M., Basu, S., Curtin, J. J., Evans, B. J., Matheny, M. E., Nundy, S., Sendak, M. P., Shachar, C., Shah, R. U., Thadaney-Israni, S.
  2020; 2020

- **Characterizing Tract-Specific White Matter Trajectories and Stability of Individual Differences in Infant Rhesus Monkeys: Implications for Developmental Psychopathology**
  Aggarwal, N., Moody, J., Dean, D., Tromp, D., Riedel, M., Kecskemeti, S., Alexander, A., Kalin, N.
  NATURE PUBLISHING GROUP.2019: 286

- **Translating a Non-Human Primate Behavioral Paradigm to Probe Psychopathology in Youth: A Cross-Species Study of Threat-Approach**
  Naim-Aricha, R., Haller, S., Kenwood, M., Aggarwal, N., Grassie, H., Kalin, N., Brotman, M.
  NATURE PUBLISHING GROUP.2019: 128-129