

February 8, 2023

Lawrence A. Tabak  
Director  
National Institutes of Health

Michael Lauer  
Deputy Director for Extramural Research  
National Institutes of Health

Robert W. Eisinger  
Acting Director, Division of Program Coordination, Planning, and Strategic Initiatives  
National Institutes of Health


**Re: Request that NIH Take Action to End Macaque Experimentation at Harvard Medical School**


Dear Dr. Tabak, Dr. Lauer, and Dr. Eisinger:


This letter is being submitted to the National Institutes of Health (NIH) on behalf of the 381 undersigned scientists, doctors, academics, and lawyers who have serious concerns about NIH’s funding of unethical experiments on macaque monkeys and other non-human primates taking place at Harvard Medical School. As the attached more detailed request explains, we urge NIH to review the protocols and justifications for these experiments with an eye toward terminating the funding of these and other ongoing and future experiments on non-human primates that lack ecological validity and involve cruel and unnecessary treatment of laboratory animals.

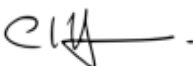
Please let us know if you have any questions about this submission.


Sincerely,

  
Katherine A. Meyer  
Director  
Animal Law & Policy Clinic  
Harvard Law School

  
Rachel Mathews  
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Rebecca Garverman  
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Catherine Hobaiter, Ph.D.  
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Ph.D. candidate, Origins of Mind  
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On behalf of the undersigned

cc: Senator Patty Murray, Chair, Labor, Health and Human Services, Education, and Related Agencies Subcommittee, Senate Committee on Appropriations

Congressman Robert Aderholt, Chair, Labor, Health and Human Services, Education Subcommittee, House Committee on Appropriations

## REQUEST THAT NIH TAKE ACTION TO END MACAQUE EXPERIMENTATION AT HARVARD MEDICAL SCHOOL

We have grave concerns about experimentation on macaque monkeys taking place at a Harvard Medical School laboratory and funded by the National Institutes of Health (NIH). As scientists and lawyers dedicated to ensuring humane treatment of primates used in research, we urge NIH to review the protocols and justifications for these experiments with an eye toward terminating the funding of ongoing and future experiments on non-human primates that lack ecological validity and involve cruel and unnecessary treatment of laboratory animals. The Harvard Law School Animal Law & Policy Clinic has already attempted to address these concerns by contacting the relevant Institutional Animal Care and Use Committee—to no avail. Accordingly, we now request that NIH take immediate action to deal with this matter.<sup>1</sup>

In an article published in the Proceedings of the National Academy of Sciences (PNAS) last September, Dr. Margaret S. Livingstone reported her observations that distressed mother monkeys will clutch a soft toy—which she calls an “inanimate surrogate infant”—when their babies are taken from them soon after birth.<sup>2</sup> These observations are incidental to the routine maternal separation that occurs in this Harvard Medical School laboratory, which uses baby monkeys as its primary test subjects. According to the publication, this work was supported by NIH grants EY16187, EY 025670, EY012196, and NS123778, and, so far, has cost taxpayers many millions of dollars. Prominent media coverage of the publication has led to scientific and public outcry regarding the ethics of such research.<sup>3</sup>

This line of research has not and, we suggest, cannot add any meaningful contribution to our knowledge of either non-human or human primate behavior. Contrary to the Harvard Medical School’s statement<sup>4</sup> that these experiments have implications for understanding maternal bonding in humans, the relevant publication itself concedes that “*there is no way of knowing the extent to which these observations bear on human maternal bonding, or on other kinds of*

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<sup>1</sup> See Letter from Katherine Meyer, Rachel Mathews, & Rebecca Garverman, Harvard Animal Law & Policy Clinic to Arlene Santos-Diaz, Harvard Medical School Office of the IACUC (Oct. 26, 2022), <https://animal.law.harvard.edu/wp-content/uploads/ALPC-Letter-to-HMS-IACUC.pdf>. To date, we have received no substantive response to this communication.

<sup>2</sup> Margaret S. Livingstone, *Triggers for Mother Love*, 119 PROC. NAT’L ACAD. SCI. 1 (2022).

<sup>3</sup> See Letter from Catherine Hobaiter et al., Wild Minds Lab, to Proceedings of the National Academy of Sciences Editors (Oct. 11, 2022), <https://doi.org/10.5281/zenodo.7347808>; Barbara J. King, *Addressing the Harms of Animal Research: What Role Might Journals Play?* MEDIUM (Nov. 3, 2022), <https://medium.com/@barbarajking/addressing-the-harms-of-animal-research-what-role-might-journals-play-3f5425ce341>; *Harvard Study on Monkeys Reignites Ethical Debate Over Animal Testing*, CBS NEWS (Nov. 3, 2022), <https://www.cbsnews.com/news/monkey-study-harvard-reignites-debate-animal-testing/>; David Grimm, *Harvard Studies on Infant Monkeys Draw Fire, Split Scientists*, SCIENCE (Oct. 19, 2022), <https://www.science.org/content/article/harvard-studies-infant-monkeys-draw-fire-split-scientists>; Paul Bedard, *PETA Urges End of Harvard Monkey Tests, Sewing Eyes Closed*, WASHINGTON EXAMINER (Oct. 14, 2022), <https://www.washingtonexaminer.com/news/washington-secrets/peta-urges-end-of-harvard-monkey-tests-sewing-eyes-closed>.

<sup>4</sup> *Statement in Response to Concerns About Research at HMS*, HARVARD MEDICAL SCHOOL (Oct. 14, 2022), <https://hms.harvard.edu/news/statement-response-concerns-about-research-hms>.

*bonding.*”<sup>5</sup> As Dr. Barbara J. King and several colleagues explained in a letter to PNAS protesting the publication of these experiments:

Laboratory research using stressed animals suffers from limited applicability to humans; the impact of stress thoroughly alters an individual’s physiology, severely reducing cross-species translatability. In the [Livingstone] study, monkey mothers faced social separation right at the point when their pregnancy was detected. Might their stress affect the validity of results regarding their response to soft toys?<sup>6</sup>

Science already has a deep understanding of the mother-infant primate bond from decades of work.<sup>7</sup> The infamous original maternal deprivation tests conducted by Dr. Harry Harlow in the 1960s described the effects on infant primates of months of isolation as “devastating and debilitating.”<sup>8</sup> Subsequent moves towards pairing separated infants with age-mates shows that they endure significant long-term negative consequences,<sup>9</sup> so much so that mother-deprived infant primates continue to be used as models for depression and anxiety.<sup>10</sup> We see the same patterns of behavioral and physiological impact in observations of wild primates. Maternally deprived primates show marked differences in their stress profiles. In the wild, amongst a natural system of social support they are sometimes able to (partially) recover,<sup>11</sup> but in captivity these effects can be life-long.<sup>12</sup> Wild primates similarly show behavior we would describe as anxiety or depression in humans when their maternal and/or social needs are not met.<sup>13</sup> Today, we have an entire field of primate thanatology which explores, through natural observation, the psychological impacts on primates of the permanent loss of key social partners,<sup>14</sup> including the impact on mothers of the loss of their infants.<sup>15</sup> The undersigned scientists together represent collective centuries of expertise, and include both early career researchers and some of the

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<sup>5</sup> See Livingstone, *supra* note 2 at 4 (emphasis added).

<sup>6</sup> King, *supra* note 3.

<sup>7</sup> See, e.g., SARAH HRDY, *MOTHER NATURE: A HISTORY OF MOTHERS, INFANTS, AND NATURAL SELECTION* (1999); K. D. Broad, et al., *Mother-Infant Bonding and the Evolution of Mammalian Social Relationships*, 361 PHIL. TRANSACTIONS ROYAL SOC’Y 2199 (2006).

<sup>8</sup> Harry F. Harlow et al., *Total Social Isolation in Monkeys*, 54 PSYCH. 90, 94 (1965).

<sup>9</sup> Amanda M. Dettmer & Stephen J. Suomi, *Nonhuman Primate Models of Neuropsychiatric Disorders: Influences of Early Rearing, Genetics, and Epigenetics*, 55 ILAR J. 361, 362 (2014).

<sup>10</sup> *Id.* See also Stephen J. Suomi, *Mother-Infant Attachment, Peer Relationships, and the Development of Social Networks in Rhesus Monkeys*, 48 HUM. DEV. 6 (2005).

<sup>11</sup> See generally Cédric Girard-Buttoz et al., *Early Maternal Loss Leads to Short- But Not Long-Term Effects On Diurnal Cortisol Slopes In Wild Chimpanzees*, eLIFE 1 (2021).

<sup>12</sup> See generally Xiaoli Feng et al., *Maternal Separation Produces Lasting Changes in Cortisol and Behavior in Rhesus Monkeys*, 108 PROC. NAT’L ACAD. SCI. 14312 (2011).

<sup>13</sup> See generally Maria Botero et al., *Anxiety-Related Behavior of Orphan Chimpanzees (Pan Troglodytes Schweinfurthii) At Gombe National Park, Tanzania*, 54 PRIMATES 21 (2013); Catherine Hobaiter et al., *‘Adoption’ by Maternal Siblings in Wild Chimpanzees*, 9 PLOS ONE 1 (2014); Rachna B. Reddy & John C. Mitani, *Social Relationships and Caregiving Behavior Between Recently Orphaned Chimpanzee Siblings*, 60 PRIMATES 389 (2019).

<sup>14</sup> See generally James R. Anderson, et al., *Evolutionary Thanatology*, 373 PHIL. TRANSACTIONS ROYAL SOC’Y 1 (2018); André Gonçalves & Susana Carvalho, *Death Among Primates: A Critical Review of Non-Human Primate Interactions Towards Their Dead and Dying*, 94 BIOLOGICAL REVS. 1502 (2019).

<sup>15</sup> See generally Adrian Soldati et al., *Dead-Infant Carrying by Chimpanzee Mothers in the Budongo Forest*, 63 PRIMATES 497 (2022).

leading international names in primate behavior and welfare, as well as researchers working on observational study in the wild, and those working with primates in captivity. All agree that *experiments like this do not add any meaningful contribution to our knowledge of primate or human behavior* and that maternal-separation methods fail to meet modern scientific and ethical standards.

The experiments occurring in Dr. Livingstone’s laboratory also raise significant animal welfare concerns. Scientific studies have long shown that—just as would be the case with removing *human* infants from their mothers—separating non-human primate infants from their mothers increases stress and abnormal behavior patterns in the infants (such as pacing, finger sucking, and self-grasping),<sup>16</sup> causes depression,<sup>17</sup> increases distress, and has a negative impact on social behaviors (such as play and proximity to other non-human primates).<sup>18</sup>

The specific protocols involved in Dr. Livingstone’s laboratory also raise many *ethical* concerns. For example, the PNAS article describes forcibly separating a mother macaque from her infant, and then returning the infant to her just six hours later, at which point, not surprisingly, the traumatized mother rejected the infant.<sup>19</sup> Practices like this raise profound ethical concerns for both mother and infant and are clearly not in the best interest of either. “Many researchers who are serious about understanding and facilitating human bonding rightly focus on ethical, meaningful research with children and their caregivers. In any case, no speculative benefit to humans ethically justifies maternal separation of nonhuman primates.”<sup>20</sup>

The primary line of research at the Livingstone laboratory involves subjecting baby monkeys to “abnormal visual experiences of faces.”<sup>21</sup> This was achieved by having laboratory staff wear “welders’ masks that prevented the monkey from seeing the staff member’s face,” or raising monkeys “under conditions of binocular-visual-form deprivation via eye lid suturing for the first year.” In other words, the researchers sewed shut the eyes of the infant monkeys so that they could not see in order to ascertain whether this would have a negative impact on their visual and brain development. According to the 2020 publication on these studies, this work was supported by NIH grants RO1 EY 16187, R01 EY 25670, and P30 EY 12196—again, at great taxpayer expense.

The laboratory has defended these experiments,<sup>22</sup> asserting that “eyelid closure was and remains *routine* protocol across research labs that study vision disorders,” and that the “technique, in fact, paved the way for the modern non-invasive methods we use now.” However,

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<sup>16</sup> See Feng et al., *supra* note 12 at 14315.

<sup>17</sup> See generally L. Drago & B. Thierry, *Effects of Six-day Maternal Separation on Tonkean Macaque Infants*, 41 PRIMATES 137 (2000).

<sup>18</sup> See generally Mark L. Laudenslager et al., *Total Cortisol, Free Cortisol, and Growth Hormone Associated With Brief Social Separation Experiences in Young Macaques*, 28 DEVELOPMENTAL PSYCHOBIOLOGY 199 (1995).

<sup>19</sup> See Livingstone, *supra* note 2.

<sup>20</sup> King, *supra* note 3.

<sup>21</sup> Michael J. Arcaro et al., *Anatomical Correlates of Face Patches in Macaque Inferotemporal Cortex*, 117 PROC. NAT’L ACAD. SCI. 32667, 32667 (2020).

<sup>22</sup> *Professor Livingstone’s Personal Statement About Recent Concerns Over Animal Research*, HARVARD MEDICAL SCHOOL (Oct. 24, 2022), <https://hms.harvard.edu/news/professor-livingstones-personal-statement-about-recent-concerns-over-animal-research>.

in actuality, these “modern” methods are *face masks and goggles*.<sup>23</sup> In our opinion, there is absolutely no need to fund researchers to sew infant monkeys’ eyes shut simply to conclude the obvious—i.e., that non-invasive goggles and face masks, which have been available for centuries,<sup>24</sup> could be used instead for ocular deprivation.

The assertion that the “work points to possible interventions for children with autism who might choose not to look at other people or their faces”<sup>25</sup> is similarly lacking in scientific justification. The macaques used in this research are already physically, psychologically, and environmentally compromised. They are in laboratory settings that deprive them of anything resembling a natural socio-ecological environment. The absence of basic environmental, as well as social, enrichment has a well-established negative impact on both brain development and behavior.<sup>26</sup>

Thus, in addition to being deprived of the ability to see, these macaques experience general overall sensory and social deprivation that makes their world experience, and thus their brain development, very different from that of a child who avoids looking directly at an individual’s face. In sharp contrast, autistic children and children with face blindness are *not* deprived of many typical human life experiences and continue to live with their families. Any scientific argument for these studies is compromised as it is impossible to disentangle any possible effects arising from the deprivation of human faces from the significant widespread impacts of maternal deprivation and abnormal social environment on these primates. As a result, it is extremely difficult to understand the applicability of these experiments to human children, whether autistic or not.

The experiments occurring at Harvard Medical School are just one example of ongoing animal experimentation throughout the country with highly concerning ethical implications. We are deeply troubled by these experiments and ask NIH to internally review not only these particular studies at the Harvard Medical School, but also all other ongoing non-human primate experiments of a similar nature, and to permanently end funding for current or future projects that lack ecological validity<sup>27</sup> and involve cruel and inhumane treatment of animals used in experimentation. As demonstrated by the recent outcry about this research, the public has a strong interest in bringing these practices to an end.<sup>28</sup>

Instead of spending tens of millions of taxpayer funds each year on such experiments, NIH should direct its grant money to research investigating alternatives to animal testing. Such alternatives will both alleviate the need to subject non-human primates and other animals to

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<sup>23</sup> *Id.* (“My lab now uses entirely non-invasive techniques to study early visual experiences. These include caregivers wearing facial masks and having the animals wear goggles [which are] the modern non-invasive methods we use now.”).

<sup>24</sup> Patricia Bauer, *Goggles*, BRITANNICA, <https://www.britannica.com/technology/goggles> (last visited Feb. 6, 2023).

<sup>25</sup> *Personal Statement*, *supra* note 22.

<sup>26</sup> See generally Mark J. Prescott & Katie Lidster, *Improving Quality of Science Through Better Animal Welfare: The NC3Rs Strategy*, 26 LAB ANIMAL 152 (2017).

<sup>27</sup> Ecological validity examines whether study findings can be generalized to real-life settings. See, e.g., Chittaranjan Andrade, *Internal, External, and Ecological Validity in Research Design, Conduct, and Evaluation*, 40 INDIAN J. PSYCH. MED. 498 (2018). Studies such as those described in this letter lack ecological validity and are applicable only to the specific laboratory setting in which they were conducted. Consequentially, they fail to contribute to our knowledge of primate and human health and behavior.

<sup>28</sup> See *supra*, note 3 (collecting evidence of public and scientific outcry).

laboratory conditions and experimentation and be more likely to produce results that may actually benefit human health. Indeed, for both reasons, President Biden recently signed bipartisan legislation that would end the Food and Drug Administration (FDA) mandate requiring experimental drugs to be tested on animals before they can be used in human clinical trials.<sup>29</sup> The FDA itself has also committed to exploring alternative methods to animal testing to produce findings that are more relevant to humans.<sup>30</sup> Approximately 90% of drugs fail clinical trials, despite the use of animal testing in preclinical tests, suggesting that successful animal trials are a poor indicator of the efficacy of drugs in humans.<sup>31</sup> On the other hand, recent studies<sup>32</sup> have discovered an effective, economical method for creating cells similar to human brain neurons for use in scientific research. Such novel cell culture systems could increase the human relevance of research into neurodiversity, including autism, and neurological disorders such as Alzheimer's disease. We urge NIH to consider channeling its funds to further research efforts such as these to encourage the discovery and adoption of ethical and efficacious alternatives to animal experimentation.

Furthermore, *behavioral* research, which maternal deprivation experiments purport to be, should be carried out in such a way as to do no harm. The study of the biological relevance of behavioral mechanisms, such as attachment and social bonding in primates, can be effectively conducted through the observational study of free-living animals in the natural habitats to which they are adapted, particularly now that modern methods allow for the non-invasive analysis of physiological measures, such as hormone reactivity, in tandem with these observations. There is also substantial scope for the use of experimental enrichment in studies that contribute to enhancing the lives of already captive individuals, but it is fundamental that all actions—including those that are potentially enriching—be subject to ethical review. Where research must be conducted using captive animals, good welfare has proven essential to ensure robust and reliable research outcomes.<sup>33</sup>

As many of the undersigned scientists explained in the recent letter to PNAS concerning this matter:

We cannot ask monkeys for consent, but we can stop using, publishing, and in this case actively promoting cruel methods that knowingly cause extreme distress. “Doing science to promote welfare becomes a moral obligation. It is what we owe the animals who live with us, given our autonomy violations in the past.”<sup>34</sup>

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<sup>29</sup> Consolidated Appropriations Act, 2023, Subtitle B, Ch. 1, § 3209 Animal Testing Alternatives (2023).

<sup>30</sup> Rachel Nuwer, *US Agency Seeks to Phase Out Animal Testing*, NATURE (Nov. 4, 2022), <https://www.nature.com/articles/d41586-022-03569-9>.

<sup>31</sup> See generally Danilo A. Tagle, *The NIH Microphysiological Systems Program: Developing In Vitro Tools For Safety And Efficacy In Drug Development*, 48 CURRENT OP. PHARMACOLOGY 146 (2019).

<sup>32</sup> See, e.g., Emily-Rose Martin et al., *A Novel Method For Generating Glutamatergic SH-SY5Y Neuron-Like Cells Utilizing B-27 Supplement*, FRONTIERS PHARMACOLOGY, 01 (2022).

<sup>33</sup> See generally T. Poole, *Happy Animals Make Good Science*, 31 LAB'Y ANIMALS 1 (1997); Prescott & Lidster, *supra* note 26.

<sup>34</sup> Kristin Andrews, *Ethical Implications of Animal Personhood and the Role for Science*, 22 ETICA & POLITICA/ETHICS & POL. 13, 32 (2020).

NIH is required by law to ensure that the millions of dollars of taxpayer funds provided via grants to research institutions are not used for inhumane or other improper purposes, and to terminate and/or cease the funding for any research that does not meet these requirements.<sup>35</sup> Therefore, it is imperative that the agency investigate the funding of the experiments occurring at Harvard Medical School, and similar experiments occurring elsewhere in this country, and ensure that taxpayer money is not being used to continue to support unethical and cruel practices that simultaneously fail to advance scientific knowledge in any meaningful way.

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<sup>35</sup> See Health Research Extension Act, 42 U.S.C § 289d(d) (1985); *PHS Policy on Humane Care and Use of Laboratory Animals*, NATIONAL INSTITUTES OF HEALTH (2015), <https://olaw.nih.gov/policies-laws/phs-policy.htm#Introduction>.



## **SIGNATORIES TO REQUEST THAT NIH TAKE ACTION TO END MACAQUE EXPERIMENTATION AT HARVARD MEDICAL SCHOOL**

Dr. Jane Goodall, DBE, Founder of the Jane Goodall Institute and UN Messenger of Peace, the  
Jane Goodall Institute

Ian Redmond, OBE, Chairman, Ape Alliance

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Isaac Schamberg, Postdoctoral Researcher, Department of Human Evolutionary Biology,  
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Christine Webb, Lecturer & Research Associate, Department of Human Evolutionary Biology,  
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Kathrin Herrmann, DVM, PhD, Johns Hopkins Center for Alternatives to Animal Testing

Professor Bob Jacobs, Colorado College

Professor Andrew Knight, Fellow of the Royal College of Veterinary Surgeons, University of  
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Jeremy Marchant, PhD, Animal Welfare Scientist

William C. McGrew, Emeritus Professor of Evolutionary Primatology, University of Cambridge

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Dr. Anna Alberici

Zoe Albert, PhD student in Biological Anthropology, Boston University

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Karin Braunsberger, PhD, University of South Florida

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Marta Brockmeyer, PhD

James Bromberg, MD, MPH

Joan Butcher, MD

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Dr. Linda Carroll

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Dr. Robert DeMuth

Dr. Vicky Diadiuk

Jacob Dijkstra, MD, Retired, Cleveland Clinic

Dr. Gigi Dunn

Uyen Duong, MD

Dr. Lara Durgavich, Lecturer, Boston University

George Dvorsky, Senior Reporter, Gizmodo

Timothy M. Eppley, Postdoctoral Fellow, Portland State University

Anne Erreich, PhD, NYU Langone Medical Center

Leyla Ezdinli, PhD

James W. Farrell, MD

Dr. Forouz Farzan

Dr. Ruth Feldman

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Dr. Margaret Field, San Diego State University

Carol Fletcher, RN, PhD

Vincent Fonseca, MD, MPH, FACPM

Becca Franks, Assistant Professor, New York University

John Fraunfelder, MD

Agustin Fuentes, Professor of Anthropology, Princeton University

Kristi Funk, MD, Pink Lotus Breast Center

Elizabeth Giles, MD

Dr. Lori Girshick

William Goell, MD

Caren Goodman, Physician

Caroline Graettinger, PhD

Dr. Kerry Graff, Rochester Regional Health

Mary Guillet, Clinical Psychologist Retired, Department of Veterans Affairs

Andrew R. Halloran, PhD, Director of Chimpanzee Behavior & Care, Save the Chimps

Stewart Halperin, Photographer and Former Research Scientist

Louis Hargus, MD, Internal Medicine Physician

Dr. Rose Hayet

Dr. Brock Hefflin

Dr. Pilar Hernandez-Wolfe, Professor

Nicole Herzog, Assistant Professor, University of Denver

Professor Willie Hinze, Wake Forest University

Brian Hoff, MD, Mary Washington Healthcare

Desmond Hosford, PhD

Carol Hulett, MD

Jennifer Jacquet, Visiting Professor, University of Miami

Dr. Sharada Jayagopal

Eric Jenner, PhD, Director of Research, The Policy and Research Group

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Nancy Joachim, MD

Alfred Jonas, MD

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Dr. Steven G. Kellman

Dr. Victor Khayat

Matt Kingsbauer, Physician

Dr. Robert Kolesnik

Dr. Alice Krakauer

Dr. Ed Kush, Engineering Consultant

Mei-Chun Lai, PhD

Victoria Landau, Former Zookeeper, Lincoln Park Zoo

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Dr. Laura Long

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Lorraine Martinez, DO, Retired

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Janine McCarthy, Science Policy Program Manager, Physicians Committee for Responsible Medicine

Rumali Medagoda, MD

Ronald Meline, Research Scientist, PPG Aerospace

Pam Mendosa, Chairman of the Board, International Primate Protection League

Dr. Amy Mertl, Lesley University

Dr. Donna Michel

Deborah A. Milkowski, MD

Mara Miller, Independent Researcher, Center for Biographical Research, University of Hawaii

J. Thomas Millington, MD, ABPM/UHM, CWS, Southern California Wound Healing Center

Karen Milstein, PhD

Dr. Renee M. Miranda

Deborah D. Misotti, PhD, President, The Talkin' Monkeys Project

Corinna Most, Adjunct Assistant Professor, Iowa State University

Paula Muyskens, PhD

Dr. Ann-Elizabeth Nash, Colorado Reptile Humane Society

Dr. R. Jason Newsom

Nathan Nielsen, Associate Professor, University of New Mexico School of Medicine

Rachelle Nuss, MD

Victoria O'Connor, Animal Supervisor-Training, Welfare & Enrichment, Bergen County Zoo, & PhD Candidate, Oakland University

Pete Otovic, DVM, DACLAM

Tracy Ouellette, MD

Dr. Colleen Parker

Richard Pendarvis, PhD

Dr. Elizabeth Pepe, Pepe Medical Associates

Dr. Marge Peppercorn, MD

Kateryna Perevoznychenko, MD

Professor Arlette Perry, University of Miami

Richard Peters, MD, PhD, Executive Chairman, TellBio

Barbara Phillips-Seitz, MD

Donna Pierre, MD, Dryden Family Medicine

John Pippin, MD, FACC, Director of Academic Affairs, Physicians Committee for Responsible Medicine

Dr. Jane Poss, Retired Faculty, University of Texas El Paso

Dr. Ann Poznanski

Dr. Anna Preis, Smithsonian Institute

Al Puerini, MD, Clinical Professor Emeritus of Family Medicine, Brown University Medical School

Charlotte Reback, MD

Bruce Reichardt, MD

Susan Reinheimer, MD

Debra Ressler, MD

Nanette Ritchie, Physician

Dr. Joan Rodman, Clinical Psychologist

Michelle A. Rodrigues, Assistant Professor, Marquette University

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Professor Harold Takooshian, Fordham University

Hiedi Tan, MD

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Dr. Rosemary Theroux, University of Massachusetts

Sally Thompson, Retired Physician, U.S. Public Health Service

Dr. Karen M. Toman

Margaret Guilfooy Tyler, PhD, Professor of Psychology, St. Louis Community College

Kelly Tyler, MD

Raymond Vagell, PhD candidate, Texas State University

Christa Vanderbilt, PhD, LymeBasics.org

Alex Velez, Binghamton University

Dr. Anna P. Vinogradoff, PhD



Shelly Volsche, Clinical Assistant Professor, Boise State University

Manoj V. Waikar, MD

Dr. Betsy Wason

Donald Webb, MD

Pat Wentz, Professor Emeritus, University of West Florida

Professor Emily West, St. Catherine University

Paul R. West, PhD, Retired Research Scientist

Christine Wheeler, MD

Dr. Roger D. White, Anesthesiologist, Mayo Clinic

Professor Missy Williams, Lynn University

Lauren Wiseman Jones, PhD candidate, Washington University in St Louis

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