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Findings of Research Misconduct

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AGENCY:

Office of the Secretary, HHS.

ACTION:

Notice.

SUMMARY:

Notice is hereby given that the Office of Research Integrity (ORI) has taken final action in the following case:

Mona Thiruchelvam, Ph.D., University of Medicine and Dentistry of New Jersey: Based on the report of an investigation conducted by the University of Medicine and Dentistry of New Jersey (UMDNJ) and additional analysis conducted by ORI in its oversight review, ORI found that Dr. Mona Thiruchelvam, former Assistant Professor, Department of Environment and Occupational Health Science Institute (EOHSI), UMDNJ, engaged in research misconduct in research supported by National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health (NIH), grants P30 ES05022, P30 ES01247, and R01 ES10791 and the intramural program at the National Institute on Drug Abuse (NIDA), NIH.

ORI found that the Respondent engaged in research misconduct by falsifying and fabricating cell count data that she claimed to have obtained through stereological methods in order to falsely report the effects of combined exposure of the pesticides paraquat and maneb on dopaminergic neuronal death and a neuroprotective role for estrogen in a murine model of Parkinson's disease. The Respondent provided to the institution corrupted data files as the

data for stereological cell counts of nigrostriatal neurons in brains of several mice and rats by copying a single data file from a previous experiment and renaming the copies to fit the description of 13 new experiments composed of 293 data files when stereological data collection was never performed for the questioned research.

The fabricated data, falsified methodology, and false claims based on fabricated and falsified data were reported in two NIEHS, NIH, grant applications, two publications, a poster, and a manuscript in preparation:

- R01 ES016277, “Development Pesticide Exposure: The Parkinson's Disease Phenotype” (Dr. Mona J. Thiruchelvam, Principal Investigator [P.I.]), submitted 1/26/2007 and funded.
- R01 ES015041, “Gender and the Parkinson's Disease Phenotype” (Dr. Mona J. Thiruchelvam, P.I.), submitted 12/19/05.
- Rodriguez, V.M., Thiruchelvam, M., & Cory-Slechta, D.A. “Sustained Exposure to the Widely Used Herbicide, Atrazine: Altered Function and Loss of Neurons in Brain Monamine Systems.” *Environ Health Perspect.* 113(6):708-715, 2005 (“*EHP* paper”).
- Thiruchelvam, M., Prokopenko, O., Cory-Slechta, D.A., Richfield, E.K., Buckley, B., & Mirochnitchenko, O. “Overexpression of Superoxide Dismutase or Glutathione Peroxidase Protects against the Paraquat + Maneb-induced Parkinson Disease Phenotype.” *J. Biol. Chem.* 280(23):22530-22539, 2005 (“*JBC* paper”).
- Harvey, K., Victor, A.I., Wang, Y., Kochar, Y., Cory-Slechta, D.A., & Thiruchelvam, M. “Gene Delivery of GDNF Impedes Progressive Neurodegeneration in Paraquat and Maneb Exposure Model of Parkinson's Disease.” Poster presentation, *Neuroscience* 2006 (“*Neuroscience* poster”).
- Thiruchelvam, M., Kochar, Y., Mehta, H., Prokopenko, O., Cory-Slechta, D.A., Richfield, E.K., & Mirochnitchenko, O. “Mechanisms associated with gender difference in the paraquat and maneb animal model of Parkinson's disease, 2006 (“manuscript”).

Specifically, ORI finds that the Respondent engaged in research misconduct by knowingly and intentionally:

- Falsifying and fabricating summary bar graphs and methodology for stereological cell counts in a murine model of Parkinson's disease, when the stereological counts were never performed;
- Copying and altering in multiple ways a single stereology “.dat” computer file generated on August 18, 2002, and renaming it to generate 293 data files representing counts for 13 new experiments that were never performed, by altering the files to make them unreadable and claiming that these files were from valid stereological cell count experiments carried out at UMDNJ between 2004 and 2006;
- Falsifying a bar graph representing brain proteasomal activity, by selectively altering data for relative fluorescent unit (RFU) values to support the hypothesis that development of Parkinson's disease entails proteasomal dysfunction with a higher effect in males compared to females;
- By failing to perform stereological cell counts, the following figures of summary bar graphs, reported methodology, and related claims of the Respondent's *JBC* paper, *EHP* paper, a manuscript, a poster, and two grant applications were falsified:

—Figure 7B and the related text in R01 ES016277-01 and the *Neuroscience* 2006 poster

—Figure 4 and the related text in R01 ES016277-01

—Figure 9 and the related text in R01 ES016277-01 and R01 ES015041

—Figure 3 and the related text in the *JBC* paper

—Figure 4 and the related text in the *EHP* paper

—Figure 5 and the related text in a *manuscript* in preparation

- By falsifying and selectively altering experimental data for relative fluorescent unit values of brain proteasomal activity, the summary bar graph in Figure 6 and the claim that combined exposure of the pesticides causes significant decreases in proteasomal activity with a higher effect in males than in females were falsified in NIH grant application R01 ES016277.

Dr. Thiruchelvam has entered into a Voluntary Exclusion Agreement (Agreement) and has voluntarily agreed for a period of seven (7) years, beginning on June 13, 2012:

(1) To exclude herself from any contracting or subcontracting with any agency of the United States Government and from eligibility or involvement in nonprocurement programs of the United States Government referred to as “covered transactions” pursuant to HHS' Implementation (2 CFR part 376 *et seq*) of OMB Guidelines to Agencies on Governmentwide Debarment and Suspension, 2 CFR part 180 (collectively the “Debarment Regulations”);

(2) To exclude herself from serving in any advisory capacity to PHS including, but not limited to, service on any PHS advisory committee, board, and/or peer review committee, or as a consultant; and

(3) to request retraction of the following two papers:

- *Environ Health Perspect.* 113(6):708-715, 2005
- *J. Biol. Chem.* 280(23):22530-22539, 2005.

FOR FURTHER INFORMATION CONTACT:

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