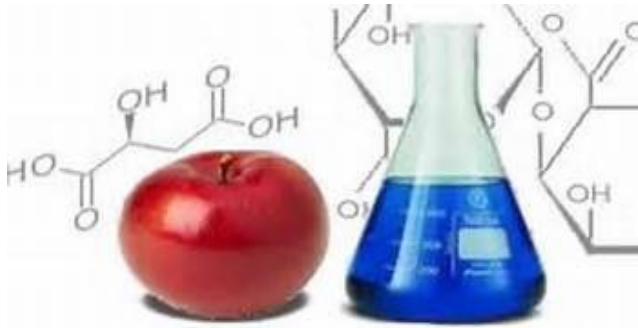


Food Chemistry & Packaging Platform Overview



Lauren Jackson, Ph.D.
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Food Chemistry & Packaging Platform



Laxmi Adhikari, Ph.D. (FDA/ORISE)
Robert Beverly, Ph.D. (FDA/ORISE)
Cole Carter, Ph.D. (FDA/ORISE)
Tim Duncan, Ph.D. (FDA)
Greg Fleischman, Ph.D. (FDA)
Hilary Green, Ph.D. (FDA/ORISE)
Lauren Jackson, Ph.D. (FDA)
Xingyi Jiang, Ph.D. (FDA/ORISE)
Jeremiah Kidd, M.S. (FDA/ORISE)
Ian Klug, M.S. (FDA/ORISE)
John Koontz, Ph.D. (FDA)
Aman Sandhu, Ph.D. (IIT/IFSH)
Yoon Song, Ph.D. (FDA)
Huayi Wang, M.S. (FDA/ORISE)
Joshua Warren, B.S. (IIT/IFSH)
Joseph Zuklic, M.S. (IIT/IFSH)



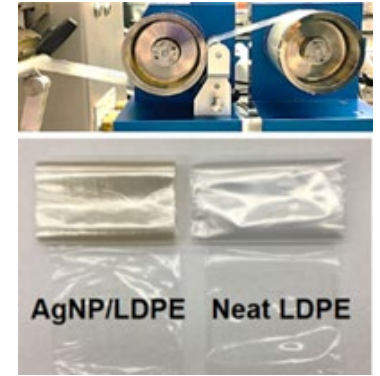
New Hires



Ian Klug, M.S.
FDA/ORISE

Research Areas

- Migration of packaging constituents and contaminants (including nanoparticles)
- Mitigation of chemical hazards
- Processing effects on detection and formation of chemical hazards
- Allergen detection, sampling and control
- Development and evaluation of novel analytical methods for chemical (and biological) hazards



Current Projects: Packaging and Method Development

Title	PIs	Area of Focus
Quantification of sorption behavior of polypropylene towards various chemical contaminants under FDA surrogate testing protocol for use in recycled plastics	Yoon Song; John Koontz	Safety of recycled plastic packaging
Sorption behavior of surrogate chemical contaminants in polyethylenes for use as post-consumer recycled food contact materials	John Koontz; Yoon Song	Safety of recycled plastic packaging
Metal ion transport from food contact materials manufactured with nanostructured materials	Tim Duncan; Laxmi Adhikari	Safety of nanotechnology enabled packaging material
Flexible paper-based dual-mode nanosensing platform for the rapid screening and ultra-sensitive quantification of foodborne viral pathogens*	Tim Duncan; Laxmi Adhikari	Biosensor for viral pathogens

Current Projects: Allergens

Title	PIs	Area of Focus
Assessment of undeclared allergens in peanut, nut, and seed butters and pastes	Hilary Green; Lauren Jackson	Reducing allergen cross-contact risk
Evaluation of wiping and washing treatments for removal of allergens and gluten from food-contact surfaces*	Jeremiah Kidd; Lauren Jackson; Aman Sandhu	Allergen control in retail and food service
Transfer of seafood allergens to frying oil and subsequent fried products	Xingyi Jiang; Lauren Jackson	Mitigation of allergen cross contact during frying operations
Evaluation of allergen cross-contact risk associated with production of oil-roasted nut and peanut products	Robert Beverly; Lauren Jackson	Mitigation of allergen cross contact during frying operations

*Funded in part by Diversey

2024 Accomplishments

Presentations: >15 Oral and poster presentations at ACS (Spring and Fall meetings), Gordon Research Conference, IAFP, AOAC, Fed Only Nanoplastics Interest Group Meeting (virtual)

Symposia organized:

Processing and the Storage Induced Toxins

Division: AGFD, Cosponsors: ANYL

Fall 2024 ACS National Meeting. Denver, CO August



Participation in committees/workgroups:

Tim Duncan- CFSAN Microplastics and Nanoplastics Workgroup, Vice-chair Nanoscale Science and Engineering for Agriculture and Food Systems Gordon Research Conference;

John Koontz- CFSAN Microcystin Workgroup; **Lauren Jackson-** CFSAN Allergen Committee and Technical Team (ACTT), USDA Panel National Program 108; Scientific Editor for JFP, Associate Editor for CRFSFS, Program Committee IAFP.

2024 Accomplishments- Awards

Tim Duncan

- FDA Honor Award- FDA Nanomaterials Safety and Health User Guide Team
- FDA Group Recognition Award - FDA Laser Safety Leadership Team

Greg Fleischman

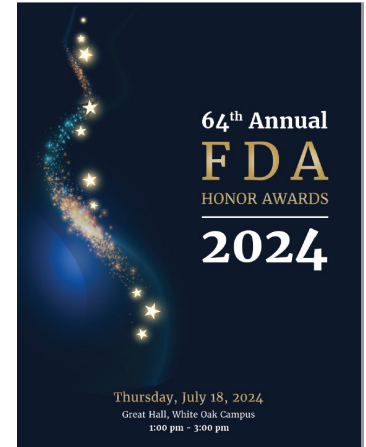
- CFSAN Exceptional Achievement Award- For exceptional work as a food processing subject matter expert in support of FDA/CFSAN recall and compliance cases.

Lauren Jackson

- FDA Group Recognition Award (cross-cutting) - Infant Formula Transition Plan Implementation Team

John Koontz

- FDA Group Recognition Award (cross-cutting)- Rice Noodle Low Acid Canned Food/Acidified Food Injunction



2024 Publications

1. Adhikari, L., Sayeed, M., Mudireddy, R., Vallalon, K., Shekhawat, G., Bleher, R., and T.V. Duncan. 2024. Surface heterogeneity at the polymer-food interface influences Ag migration from plastic packaging incorporating Ag-exchanged zeolites. *ACS Appl. Mater. Interfaces*. <https://doi.org/10.1021/acsami.4c05581>
2. Duncan, T.V., Kahn, S.A., Patri, A., and S. Wiggins. 2024. Regulatory Science Perspective on the Analysis of Microplastics and Nanoplastics in Human Food. *Anal. Chem.* 96, 11, 4343–4358. (Invited) <https://doi.org/10.1021/acs.analchem.3c05408>
3. Green, H. and L.S. Jackson. 2024. Dry Cleaning and Sanitization Technologies. Encyclopedia of Food Safety (Second Edition), pp. 732-738, <https://doi.org/10.1016/B978-0-12-822521-9.00225-2>
4. Green, H., Kidd, J. and L.S. Jackson. 2024. Novel and Emerging Cleaning and Sanitization Technologies. Encyclopedia of Food Safety (Second Edition), pp. 739-745 <https://doi.org/10.1016/B978-0-12-822521-9.00231-8>
5. Jiang, X. and L.S. Jackson. 2024. Encyclopedia of Food Safety (Second Edition), pp. 295-308, <http://doi.org/10.1016/B978-0-12-822521-9.00233-1>
6. Redan, R.W., Zuklic, J., Cai, J., Warren, J., Carter, C., Wan, J., Sandhu, A.K., Black, D.B., and L.S. Jackson. 2024. Effect of pilot-scale high-temperature short-time (HTST) processing on the retention of key micronutrients in a fortified almond-based beverage: Implications for fortification of plant-based milk alternatives. *Frontiers in Nutrition*. In press.
7. Zhang, L., Bedford, B., Warren, J., Sharma, G., Brown, A.L., Hopfer, H., Ziegler, G.R., and L.S. Jackson. 2024. Effectiveness of dry cleaning treatments for removing milk chocolate from valve/pipe assemblies and pilot-scale chocolate processing equipment. *J. Food Protect.* 2024. <https://doi.org/10.1016/j.jfp.2024.100346>

New Research Capabilities

- **LC-MS/MS Systems**

- Waters ACQUITY UPLC I-Class Xevo TQ-S Micro IVD System



- Agilent 6475 triple quadrupole LC/MS



Thank you!

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