

## **Rescheduled International Phase II/N-acetyltransferase (NAT) Workshop**

September 25-26, 2024

[Hamilton Hall, Ohio State University Medical Center, 1645 Neil Ave, Columbus, Ohio 43210](#)

All roundtable and platform sessions will include onsite and virtual (Zoom) presentations and discussions

Workshop registration is free of charge to all participants. Refreshments and meals are provided at no cost to the speakers and to a limited number of onsite participants. Anyone interested in presenting or attending (either onsite or virtually) should send their contact information to David W. Hein at [david.hein@louisville.edu](mailto:david.hein@louisville.edu) as soon as possible since the number of additional onsite attendees for whom meals will be provided at no cost may be limited.

Special thanks to the Society of Toxicology for funding, the University of Louisville for logistic support and to Ohio State University for logistic support and hosting the workshop.

### **Organizing Committee**

- David W. Hein, University of Louisville, Louisville, Kentucky USA
- Sotiria Boukouvala, Democritus University of Thrace, Alexandroupolis, Greece
- Giannoulis Fakis, Democritus University of Thrace, Alexandroupolis, Greece

The workshop will immediately follow the Pharmacogenomics Global Research Network meeting scheduled for September 23-25 at Ohio State University. Meeting site: <https://www.pgrn.org/event-5628011>.

### **Accommodation Recommendations:**

[The Blackwell Hotel](#): 2110 Tuttle Park Place, to Hamilton Hall 0.9 miles - 19 minute walk

[Hyatt House](#): 633 W 5<sup>th</sup> Avenue, to Hamilton Hall 0.9 miles - 21 minute walk

[Aloft](#): 1295 Olentangy River Road, to Hamilton Hall 1.2 miles - 26 minute walk

[Springhill Suites](#): 1421 Olentangy River Road, to Hamilton Hall 1.0 miles - 23 minute walk

[The Graduate](#) (recently acquired by Hilton, so Hilton rewards will apply here): 750 N High Street, to Hamilton Hall 1.7 miles 38 minute walk



## **September 25**

**Registration and refreshments (2:30-3:00 pm)**

**Conference Roundtable (3-5:30 pm)**

- NAT nomenclature committee and PharmVar expert panel updates on NAT2 allele nomenclature
  - *Sotiria Boukouvala and Georgia Papanikolaou, Democritus University of Thrace, Alexandroupolis, Greece*
- CPIC update on NAT2 allele function
  - *David W. Hein, University of Louisville School of Medicine, Louisville, Kentucky USA*
- CPIC therapeutic recommendations for hydralazine therapy related to NAT2 phenotype
  - *Michael T. Eadon, Indiana University School of Medicine, Indianapolis, Indiana USA*
- Diversity in NAT2 and other pharmacogenes
  - *Estella Poloni, University of Geneva, Genève, Switzerland*

**Conference Dinner (6 – 9 pm; location to be announced)**

## **September 26**

**Breakfast (8:00- 8:30 am)**

**Platform Session I: NATs in chronic diseases (8:30 to 10:30 am)**

- The role of arylamine N-acetyltransferases in chronic degenerative diseases: exploring their possible function in the immune system
  - *Diana Portales-Perez, Autonomous University of San Luis Potosí, Mexico*
- Non-coding and intergenic genetic variants of human arylamine N-acetyltransferase 2 (NAT2) gene are associated with differential plasma lipid and cholesterol levels and cardiometabolic disorders
  - *Kyung U. Hong, Western New England University, Springfield, Massachusetts, USA*
- Differential expression of NAT1 in hormone receptor positive vs. negative female breast cancer
  - *Giannoulis Fakis, Democritus University of Thrace, Alexandroupolis, Greece*
- The polymorphic enzymes NAT2, GSTM1, and GSTT1 and urinary bladder cancer risk after the structural change in the local chemical industry
  - *Klaus Golka, Leibniz Research Centre for Working Environment and Human Factors at TU Dortmund (IfADo), Dortmund, Germany (via Zoom)*

**Refreshment Break**

**Platform Session II: NAT2 allele definition and function (10:30 am to 12:30 pm)**

- Prediction of N-acetyltransferase 2 (NAT2) slow and ultra-slow genotypes by two tagging SNPs available on SNP chip
  - *Silvia Selinski, Leibniz Research Centre for Working Environment and Human Factors at TU Dortmund (IfADo), Dortmund, Germany (via Zoom)*
- Single nucleotide and copy number variation at the NAT2 locus, assessed according to PharmVar criteria and nomenclature
  - *Georgia Papanikolaou, Democritus University of Thrace, Alexandroupolis, Greece*
- Differences in  $\beta$ -naphthylamine metabolism and toxicity in Chinese hamster ovary cell lines transfected with human CYP1A2 and NAT2\*4, NAT2\*5B or NAT2\*7B N-acetyltransferase 2 haplotypes
  - *Mariam R. Habil, University of Louisville, Louisville, Kentucky, USA*
- The effect of the rs1799931 c.857G>A (p.Gly286Glu) polymorphism on N-acetyltransferase 2-mediated carcinogen metabolism and genotoxicity differs with heterocyclic amine exposure
  - *David W. Hein, University of Louisville, Louisville, Kentucky USA*

**Conference lunch and roundtable discussion of NAT2 allele function (12:30 – 1:30 pm)**

**Platform Session III: NATs and mitochondrial function (1:30 – 2:30 pm)**

- The arylamine N-acetyltransferases as therapeutic targets in metabolic diseases associated with mitochondrial dysfunction
  - *Rodney F. Minchin, University of Queensland, Brisbane, Australia (via Zoom)*
- Stable isotope tracing reveals an altered fate of glucose in N-acetyltransferase 1 knockout breast cancer cells
  - *James TF Wise, Louisiana State University, Baton Rouge, Louisiana, USA*

**Platform Session IV: NAT functions in xenobiotic metabolism and beyond (2:30-5:30 pm)**

- N-acetyltransferase 2 genetic polymorphism modifies genotoxic and oxidative damage from new psychoactive substances
  - *Raul Salazar-Gonzalez, Discovery Life Sciences, Malden, Massachusetts, USA*
- Assaying NATs of human and other primates
  - *Ioanna Stavrakaki, Democritus University of Thrace, Alexandroupolis, Greece (currently at University of Crete, Heraklion, Greece)*

- Bacterial NATs in xenobiotic metabolism
  - *Maria-Giusy Papaverigi, Democritus University of Thrace, Alexandroupolis, Greece (currently at Harvard Medical School, Cambridge, Massachusetts, USA)*
- Bacterial NATs in secondary metabolism
  - *Dionysios Patriarcheas, Democritus University of Thrace, Alexandroupolis, Greece (currently at University of West Virginia, Morgantown West Virginia, USA)*
- NATs in plant-pathogenic fungi
  - *Anthony E. Glenn, US Department of Agriculture, Agricultural Research Service, Athens, Georgia, USA (via Zoom)*
- Unraveling the evolutionary origins of microbial NATs: from transglutaminases to acetyltransferases, and from xenobiotic biotransformation to the biosynthesis of secondary metabolites
  - *Sotiria Boukouvala, Democritus University of Thrace, Alexandroupolis, Greece*
- A summary of antibody reagents against NATs - all available to a good home!
  - *Edith Sim, University of Oxford, Oxford, UK (via Zoom)*

### **Refreshment Break**

### **Platform Session V: UDP- UDP-glucuronosyltransferases (5:30 – 6:30 pm)**

- Drug-drug interactions between cannabinoids and UGT-mediated metabolism of opioids and benzodiazepines
  - *Philip Lazarus, State University of New York at Buffalo, Buffalo, New York, USA*
- Role of N-glycosylation in the activity, function, and cellular localization of human uridine diphosphate glucuronosyltransferase 1A6 (UGT1A6)
  - *Yuejian Liu, University of British Columbia, Vancouver, British Columbia, Canada (via Zoom)*
- Comprehensive characterization of rat and mouse UDP-glucuronosyltransferases
  - *Yuji Ishii, Kyushu University, Fukuoka, Japan (via Zoom)*

### **Conference Dinner (7 – 9 pm; location to be announced)**