

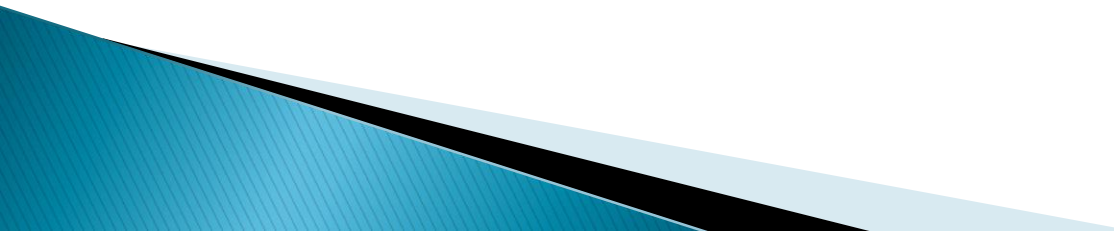
# SECIM Pilot and Feasibility Program

**UF** | Southeast Center for  
Integrated Metabolomics  
*Clinical and Translational Science Institute*  
UNIVERSITY of FLORIDA

# What are P&F Awards?

- ▶ Small awards that support the advancement of metabolomics and encourage new investigators to field
- ▶ Focused on developing capabilities for global metabolomics
- ▶ Help generate data to support new extramural grant proposals (data must be publicly deposited)
  - [www.metabolomicsworkbench.org](http://www.metabolomicsworkbench.org)
- ▶ Budget cap is \$50,000, total budget \$300,000
- ▶ Typically 10–15 awards
- ▶ Deadline of March 16<sup>th</sup>
- ▶ Application on our website

# P&F Process

- ▶ Initial screening – remove unqualified applications (admin)
  - ▶ Internal review (SECIM)
  - ▶ External review with score and feedback
  - ▶ Choose applicants
  - ▶ Send out letters
  - ▶ Setup consultations
  - ▶ Start projects
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# About SECIM

- ▶ Four cores – MS, NMR, Advanced MS, Bioinformatics
- ▶ Core 1 – MS Services
  - High throughput global metabolomic and lipidomic analysis using UHPLC–HRMS
  - Targeted analysis
  - Instruments
    - Thermo Scientific TSQ (quantitation), Q–Exactive (high resolution, accurate mass global profiling), LTQ Velos with DESI, Thermo Quantiva (targeted analysis)
    - Agilent 6490 (targeted analysis)

# About SECIM

## ▶ Core 2 – NMR

- Global metabolomics using standard 1D and 2D  $^1\text{H}$  detection as well as  $^{13}\text{C}$  metabolomics. Tissue metabolomics using high resolution magic angle spinning (HR-MAS).  $^{13}\text{C}$  isotopomer analysis of glycolysis, acetyl-CoA production and Krebs cycle activity
- Instruments
  - Bruker Avance III HD 600 MHz with cryoprobe and HRMAS probe
  - Varian Direct Drive 800 and 900 MHz with cryoprobe and 900 MHz
  - Avance III 600MHz (tissue samples)

# About SECIM

- ▶ Core 3 – Advanced MS
  - Focused on unknown metabolite identification, metabolomics method development, imaging mass spectrometry, development of innovative isotopic methods for global metabolomics utilizing IROA (isotope ratio outlier analysis)
  - Instruments
    - Thermo Scientific LTQ–XL, with MALDI, Q–Exactive, LTQ
    - Agilent 6460 triple quad with FAIMS separation
    - Agilent 6560 QToF with drift tube ion mobility separation

# About SECIM

- ▶ Core 4 – Bioinformatics
  - Provides data analysis tools via Galaxy Portal
    - Quality assessment
    - Multivariate analysis
    - ANOVA
    - Machine Learning

# SECIM Service Rates

<u>SECIM Service</u>	<u>Academic/ Non-Profit</u>	<u>Industry</u>
Global <sup>1</sup> H NMR <sup>A</sup> Metabolomics	\$50.00	\$100.00
Tissue <sup>1</sup> H NMR using HR-MAS	\$165.00	TBD
Global LC-MS Metabolomics	\$200.00	\$300.00
Global LC-MS Lipidomics	\$200.00	\$300.00
Global LC-MS IROA <sup>B</sup>	\$200.00	TBD
MALDI Imaging MS	\$200.00	TBD



## Targeted LC-MS Assays<sup>C</sup>

Method Development <sup>D</sup>	Varies based on project	
Fatty Acids	\$35.00	\$50.00
DNA Methylation	\$45.00	TBD
Amino Acids (bio-fluids & cells)	\$67.50	\$131.50
Amino Acids (tissue)	\$81.00	\$157.80
Organic Acids (bio-fluids & cells)	\$67.50	\$131.50
Organic Acids (tissue)	\$81.00	\$157.80
Acylcarnitines (bio-fluids & cells)	\$67.50	\$131.50
Acylcarnitines (tissue)	\$81.00	\$157.80
Pyridine & Adenine Nucleotides (bio-fluids & cells) <sup>E</sup>	\$81.00	\$157.80
Pyridine & Adenine Nucleotides (tissue) <sup>E</sup>	\$94.50	\$184.10
Malonyl CoA & Acetyl CoA (bio-fluids & cells)	\$67.50	\$131.50
Malonyl CoA & Acetyl CoA (tissue)	\$81.00	\$157.80
Data Normalization to Protein (cell-based projects)	\$6.75	\$13.15

<sup>A</sup> NMR costs include both 1D and 2D analysis and annotation of spectra against public databases.

<sup>B</sup> SECIM's LC-MS IROA costs do not include the cost of IROA kits.

<sup>C</sup> Dr. Tim Garrett has also developed other novel assays, and can provide price quotes following completion of the SECIM service request form.

<sup>D</sup> Requires consultation. Price will then be determined based on the duration of the project and how complicated it is.

<sup>E</sup> This assay can quantify: AMP, ADP, ATP, GDP, GTP, CDP, CTP, UDP, UTP, NAM, NMN, NAD, NADH, NADP, NADPH

# Sample Info

- ▶ **Sample types** – cellular extracts from tissue culture, plasma or serum, tissue specimens, urine, stool...and more (ask us!)
- ▶ **Sample size** – determined by investigator, large enough to provide statistical data, but  $>50$  should be carefully justified
- ▶ **Sample volume** – depends on the analysis, sample type and technique used. Generally for MS: biofluids 100–500uL (30 uL for small animals), ~1 million cells, 10mg tissue. For NMR 300–700uL for biofluids, for imaging studies 3 10um sections

# Frequently asked Q&A

- ▶ **What costs do the awards cover?**
  - Lab supplies, consumables and sample analysis
    - All funds will be awarded in credit toward SECIM services, or in payment for the project's materials and supplies.
- ▶ **What is NOT covered?**
  - Salaries, animal housing costs, travel costs, indirect costs
- ▶ **Can I submit my proposal to other RCMRCs?**
  - You should not submit the same proposal to multiple RCMRCs. If they are fundamentally different then you may do so
- ▶ **Are postdocs eligible to submit applications?**
  - Postdocs cannot be the PI on the proposals
- ▶ **What metabolites will be identified?**
  - We have lists of metabolites that CAN be identified with our targeted assays as well as our global MS assays but what WILL be identified depends on your sample
- ▶ **Do I need to select a technology in my proposal?**
  - Not necessarily. Just be clear on your specific aims. We can help you choose the best technology for your project
- ▶ **How specific should I be in my sample prep?**
  - This is EXTREMELY important. Be very specific and tell us everything that you did in your sample prep or what you plan to do

# Frequently asked Q&A

- ▶ How should I prepare my samples?
  - If you are unsure about this you can talk to the Core director of the core in which your samples will be analyzed
- ▶ Plans for Future funding – How in depth do I need to go?
  - This is a very important section as well. Make sure your plans are clear and well thought out. Provide as much detail as you have

# Wrap Up

- ▶ Questions?
  - Contact SECIM's Program Coordinator
    - [Amitch@ufl.edu](mailto:Amitch@ufl.edu)
- ▶ Feedback

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