

The University of North Carolina Organ Injury Biomarker Core



The UNC Organ Injury Biomarker Core* is a full service core designed to assist investigators in study design, quantification, and interpretation of candidate biomarkers of organ injury. The traditional biomarkers utilized to detect the presence of hepatic, renal and/or cardiac injury are suboptimal, lacking sensitivity and specificity. The new biomarkers not only provide enhanced sensitivity and specificity for injury detection but can additionally inform on mechanism of injury. We currently are focusing on liver, kidney, and cardiac injury biomarkers in clinical and non clinical species; however, we are willing to expand our menu of assays to include other organs based on the needs of the investigators we serve. Please contact us.

Advantages of working with our core:

- In-house expertise in biomarker measurement/interpretation
- Access to *in silico* modeling that incorporates release and clearance kinetics to improve study design and data interpretation (liver only at present)
- Collaborations with external experts in the fields of liver, kidney, and cardiac injury

Multiple technologies available including:

- Standard clinical chemistry analyzer
- Meso Scale Discovery (MSD)
- Luminex
- Firefly Bioworks

Services offered:

- **Study design assistance** (recommendations for biofluid sampling times, biofluid collection/processing, and pertinent biomarkers to assess)
- **Biomarker measurements** (dependent on species; including but not limited to)
 - o **Hepatic:** microRNA profiling, miR-122, HMGB1 (total), K18 (full length and cleaved), osteopontin, ALT, AST, ALP, total bilirubin, direct bilirubin, LDH, and albumin
 - o **Renal:** KIM-1, clusterin, albumin, total protein, cystatin c, RPA-1, β 2-microglobulin, osteopontin, NGAL, GST α , GST μ , sCr, and BUN
 - o **Cardiac:** microRNA profiling, cTnT, cTnI, hFABP, BNP, NT-proBNP, CK-MB, LDH, AST
- **Data Analyses/Interpretation**

MicroRNA Profiling - Now Available

MicroRNAs are small, noncoding RNA species that post-transcriptionally regulate gene expression. These species make ideal biomarkers because they are highly stable in biofluids, such as blood and urine, and can be released into circulation following organ injury. Utilizing minimal sample volume, we can now profile targeted panels (68-plex) of microRNAs in a high throughput format.

MicroRNA panels are available for the following areas of interest:
Immunology, Cardiology, Liver Toxicology, Neurology, and Oncology

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Rapid funding opportunity available now



For a limited time, we are accepting one-page proposals to initiate collaborations in which biomarker measurements, analyses, and interpretations will be conducted by our core for little to no cost to investigators (up to a maximum of \$2000 in consumables supplied). We are seeking projects in which liver, renal, or cardiac injury are suspected in clinical or nonclinical studies but have not yet been explored with the offered biomarkers. Please contact us for more details or to submit a proposal. Funding decision will be made within two weeks of submission.



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

For more information, to submit a study proposal, or to request a consultation,

contact: Rachel Church, Ph.D., Director

rchurch@unc.edu • 919-226-3145