



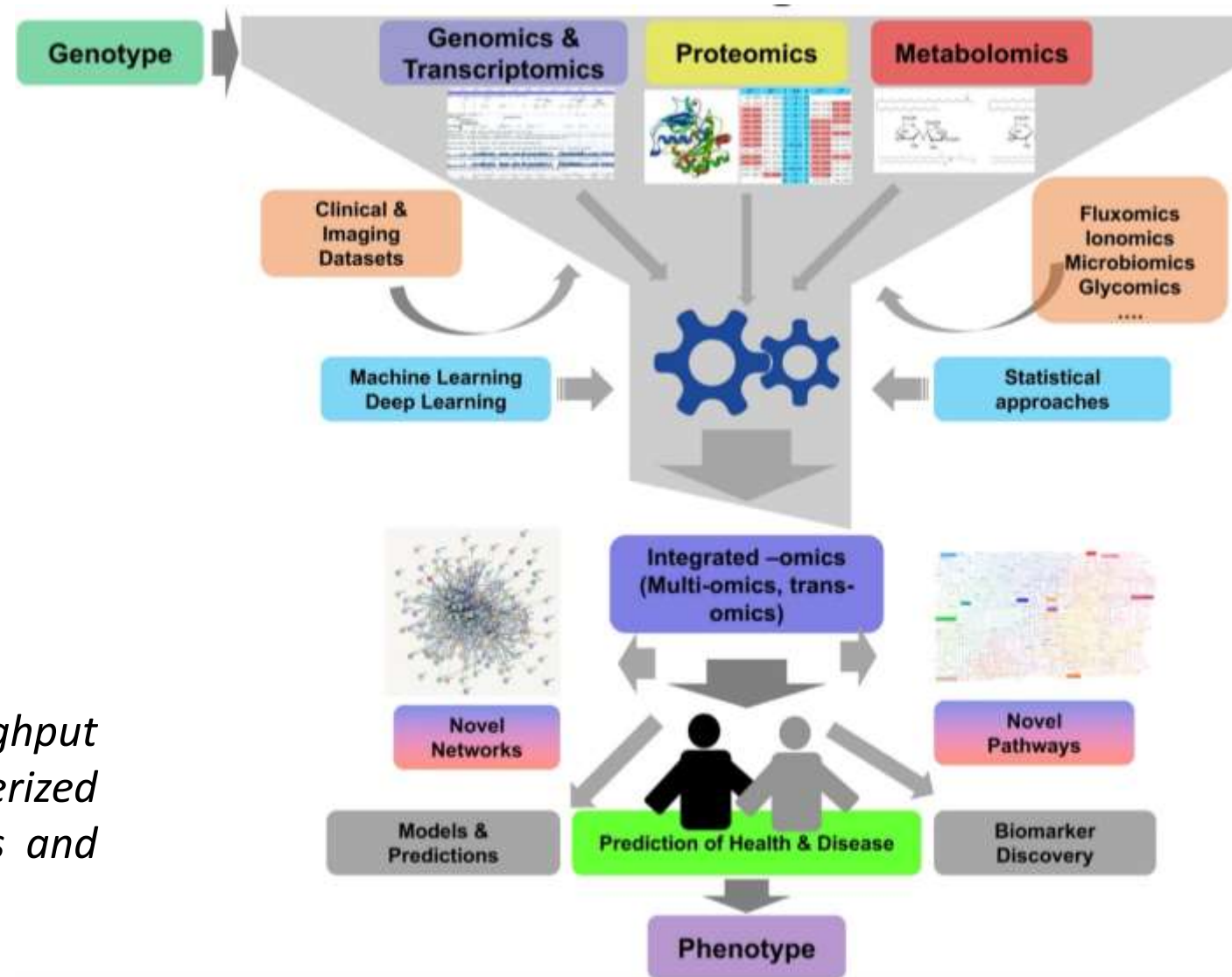
The application of MS-based Omics to study cancer-related body wasting

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QOPNA&LAQV



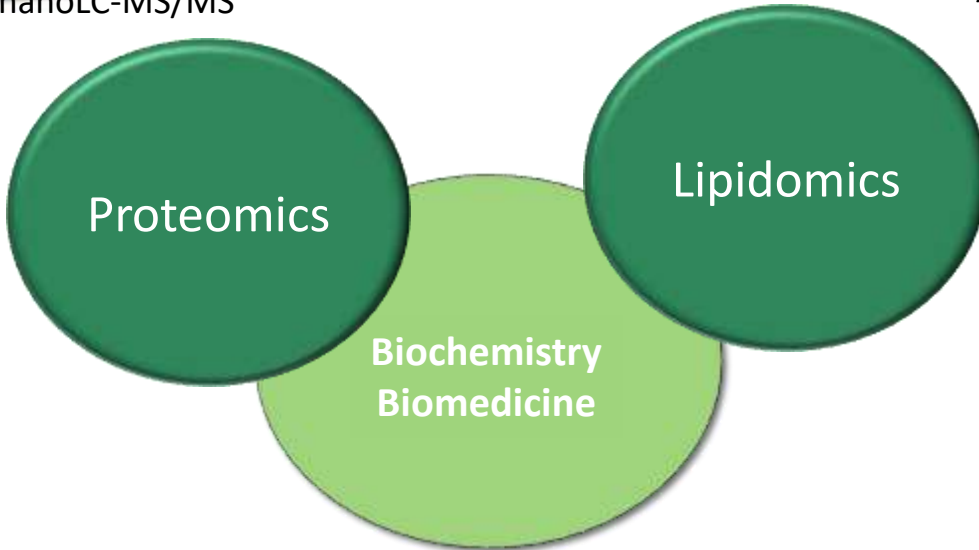
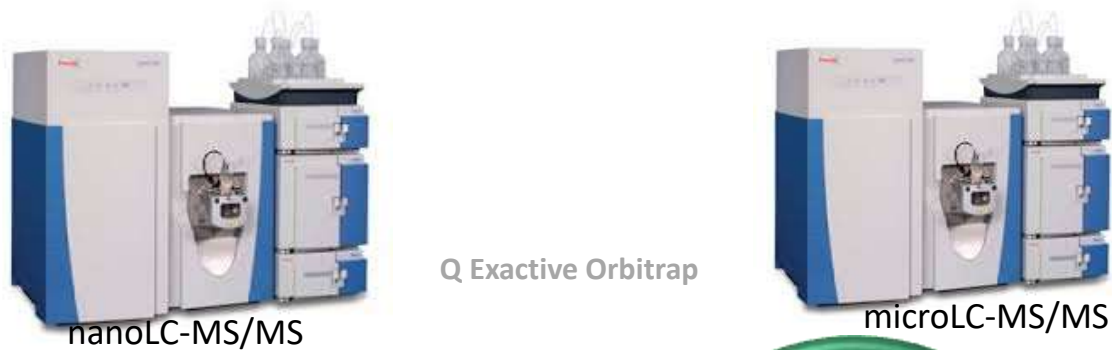
Application of Omics to Personalized Medicine



OMICS comprises high-throughput experimental technologies characterized by automation, miniaturized assays and large-scale data analysis

Mass Spectrometry Research Group - UA

- **Omics' biomedical applications;**



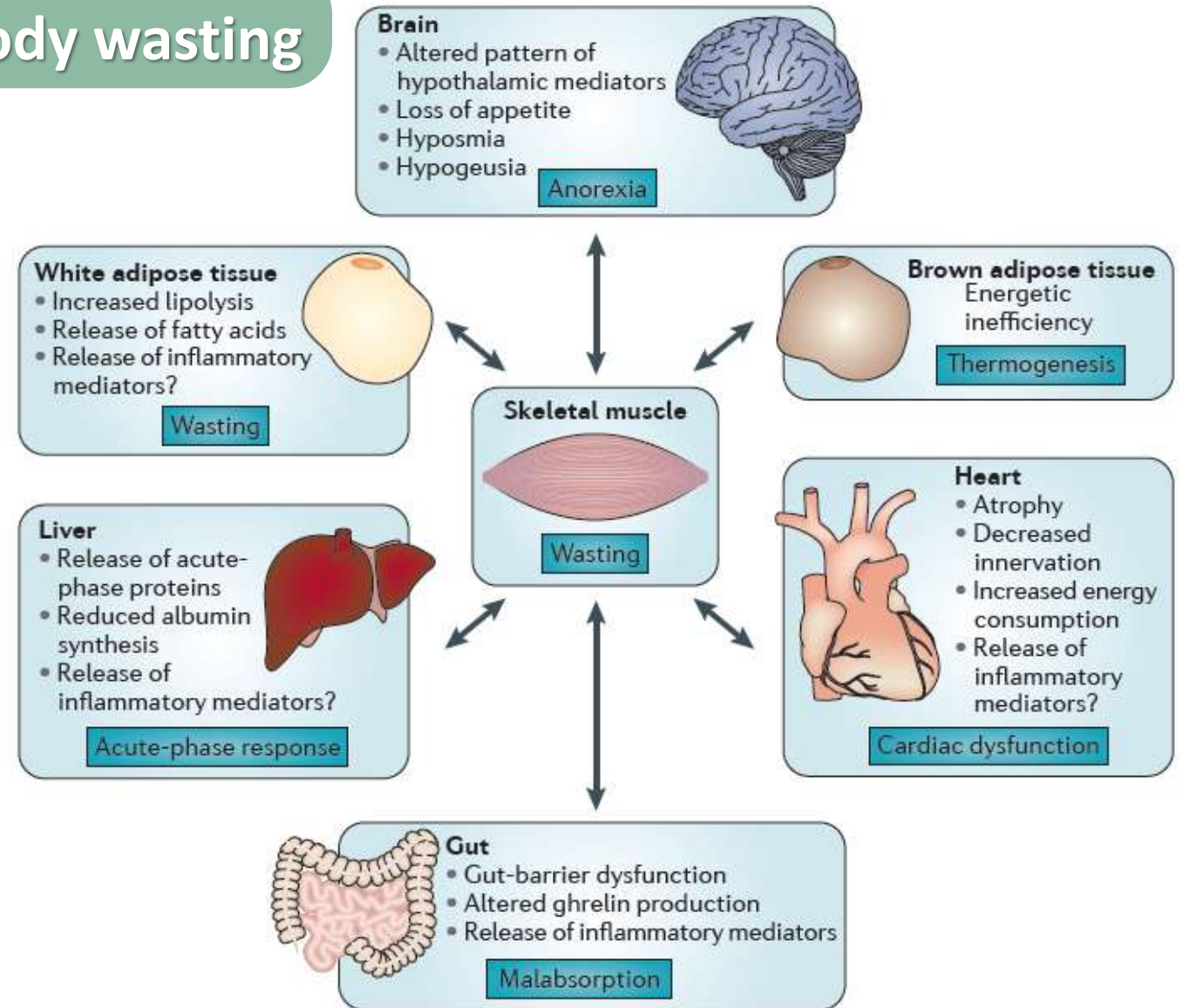
- **Line of action:**

- Omics applied to health and disease:
 - Human subjects (body fluids)
 - Pre-clinical models (body fluids and tissues)
 - *In vitro* models (cell extracts, secretome)

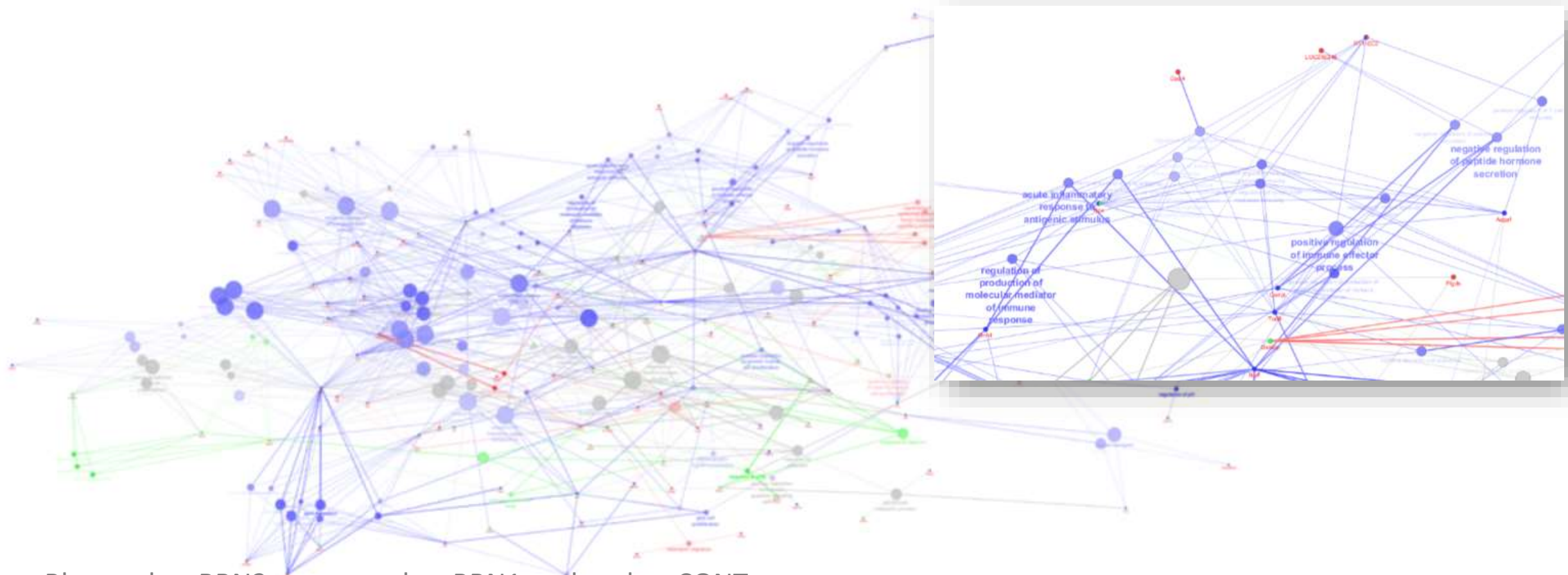
Omics applied to cancer-related body wasting

AIM

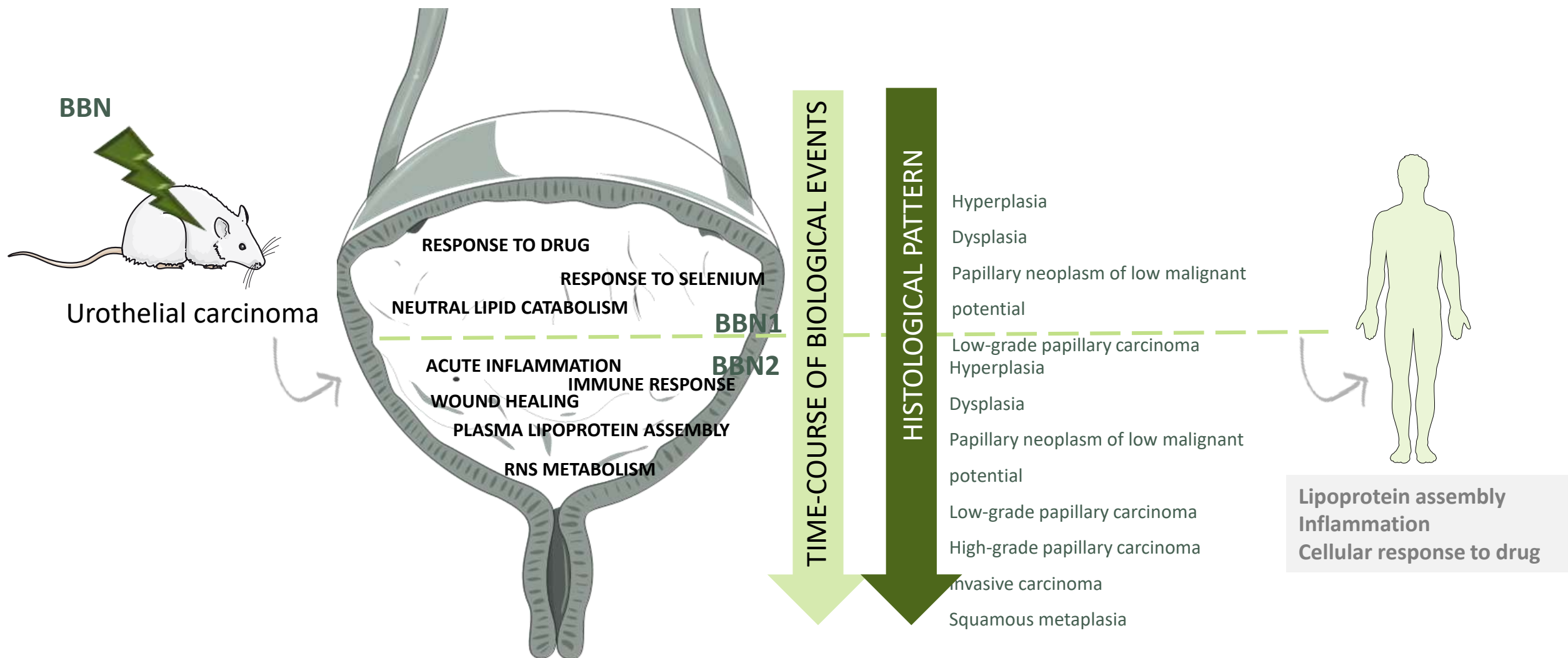
- Characterize cancer-related wasting phenotype through the Omics analysis of body fluids and tissues;
- Evaluate the effect of lifestyle on this syndrome (particularly exercise training);



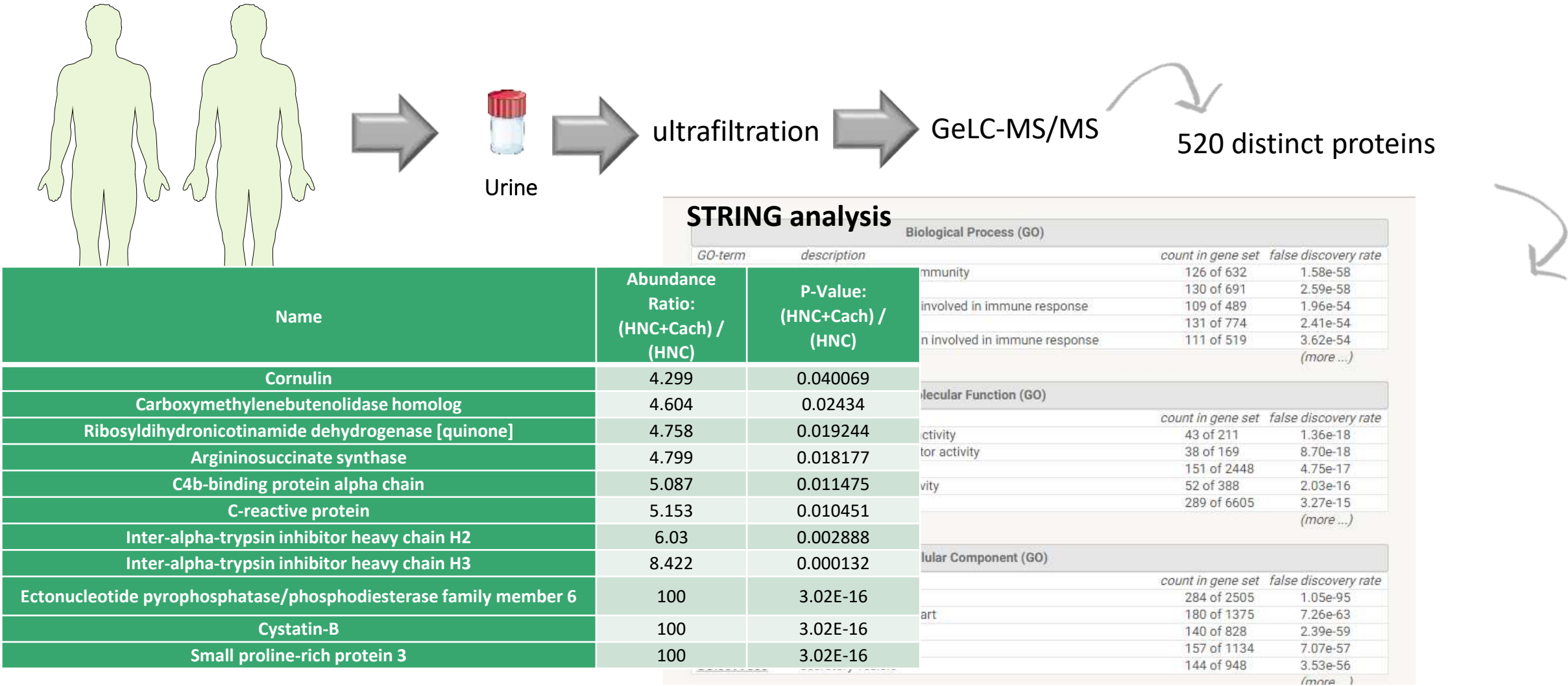
Urine proteomics



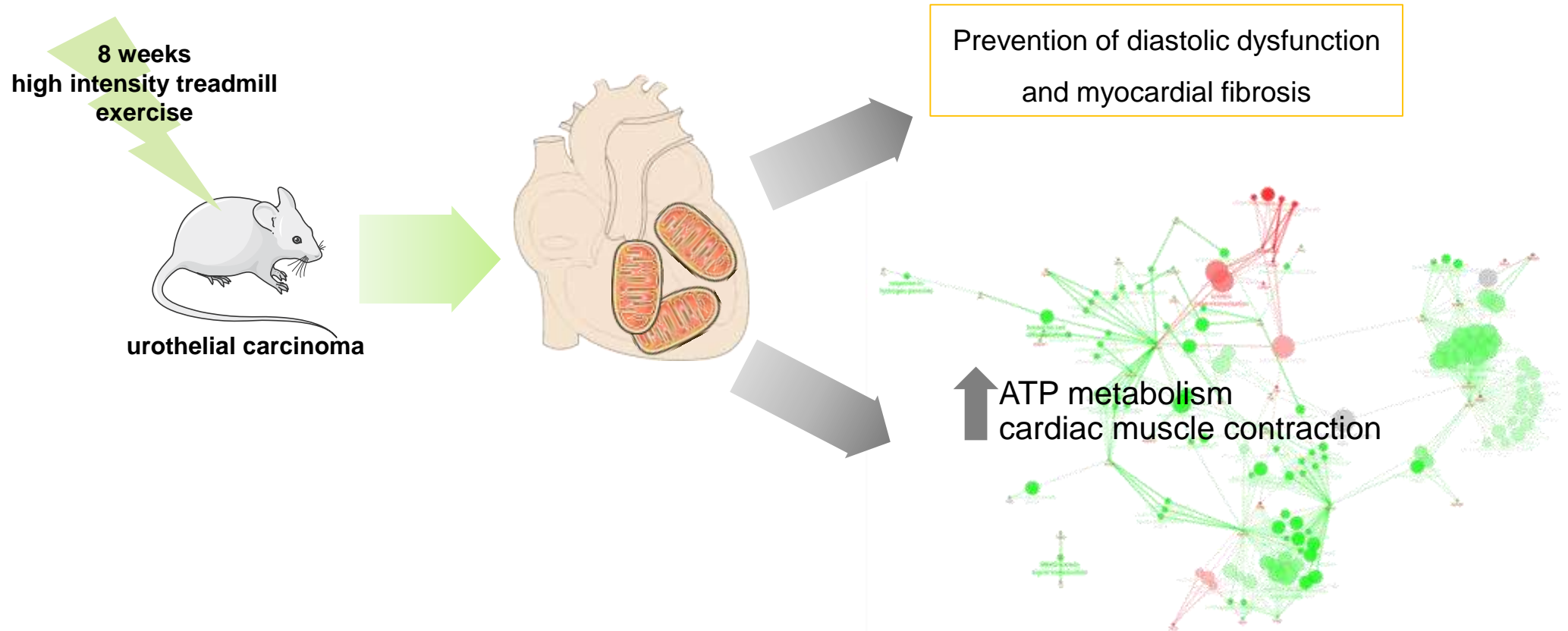
Our hypothesis



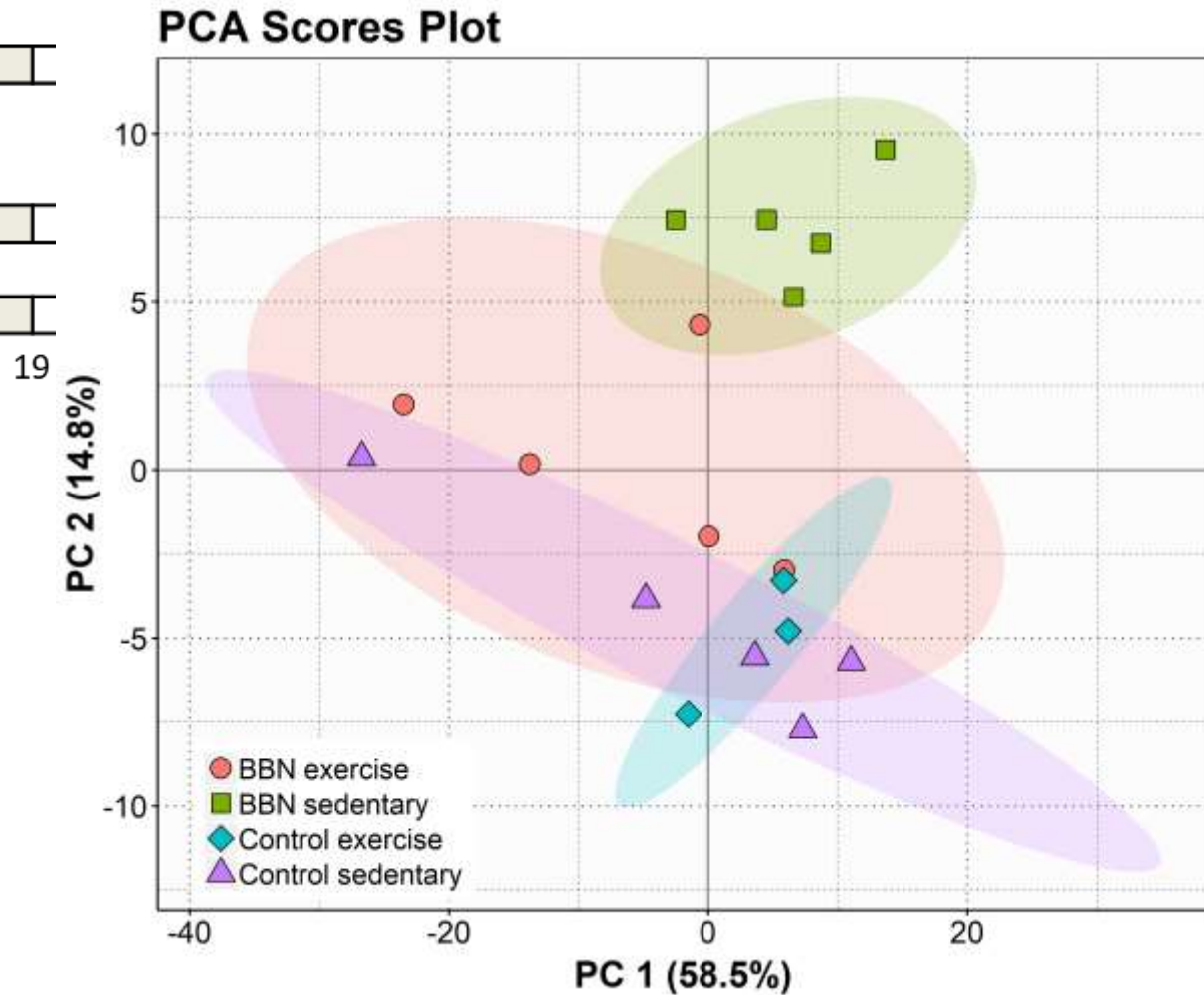
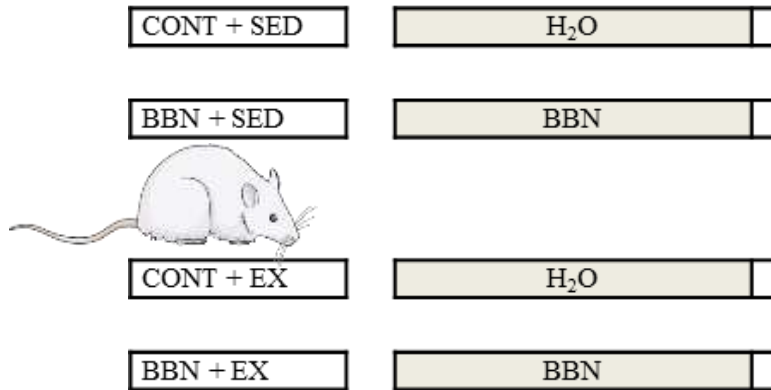
Urine proteomics-ongoing work



Our hypothesis



Striated muscle lipidomics



Lipid extraction
(Bligh and Dyer method)

LC-MS/MS

CONCLUSIONS

- Urine proteomics emphasized the contribution of some biological processes to the development of cachexia, such as inflammation and lipoproteins metabolism;
- Exercise training seems a good therapeutic strategy for the management of cachexia:
 - Improved cardiac and skeletal muscle ability to produce ATP through the proteome and lipidome remodeling of mitochondria with impact on morphological and functional adaptations;
 - Anti-inflammatory effect;
 - Reduced the number of tumor malignant lesions.

ONGOING PROJECTS

