Energy and Metabolism
Metabolic Flux and Protein Metabolism

Supplemental Materials

These supplemental materials are designed to support learning and teaching of the **Energy and Metabolism: Metabolic Flux and Protein Metabolism lecture**. They may be used by individual learners to deepen their understanding of key concepts in geroscience and by instructors to facilitate classroom discussions, assignments, or other educational activities.

The materials include:

1. Cases and discussion questions to encourage reflection and application of lecture concepts.
2. Glossary terms to support understanding of specialized geroscience terminology.
3. References and additional resources for learners who wish to explore the topic in greater depth.

Instructors are encouraged to adapt these materials as needed to meet the learning goals of their courses.

Cases/Discussions

1. What are the key considerations when choosing a pre-clinical model for studies of metabolism during aging?
2. What important information might be loss with the sampling of markers of metabolic processes.
3. At what point during aging or during an intervention should one make measurements of changes in metabolic flu?
4. What role does age play in the choice for a control in studies of aging?
5. Why might the concept of “protein turnover” be overly simplistic in studies of aging and aging interventions?
6. How is approaching maintaining the proteome (i.e., proteostasis) with aging conceptually different than simply measuring protein turnover?

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Glossary

Flux- Continuous change, passage, or movement.

Metabolic flux- The rate of turnover of molecules through a metabolic pathway

Rate of appearance – rate of appearance of a species into a pool, usually determined by a tracer.

Rate of disappearance – rate of disappearance of a species into a pool, usually determined by a tracer.

Protein turnover – the synthesis and degradation of protein.

Proteostasis – the integrated responses that maintains the proper balance, folding, and concentration of proteins within a cell.

References

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