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PET and SPECT are truly translational since the same methods can be applied in animals and in clinical studies. Owing to the small structures, dedicated instrumentation is needed for mouse and rat imaging, while large animal models can be investigated using clinical systems. Some new detector concepts have been introduced first in preclinical systems before scaling up to clinical systems. Biodistribution and biokinetics of novel radioactively labelled tracers are studied in rodents before translating into patient use. Multi-tracer longitudinal measurements can be performed for characterizing disease models or assessing the effect of interventions. In addition, similar quantitative image analysis methods can be applied in preclinical models before translating to the clinical case.

In this presentation, an overview on specific instrumentation for animal imaging will be given, together with examples of preclinical imaging studies performed in our lab with specific focus on specific tracer applications in neurology and beta-cell transplant research.

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