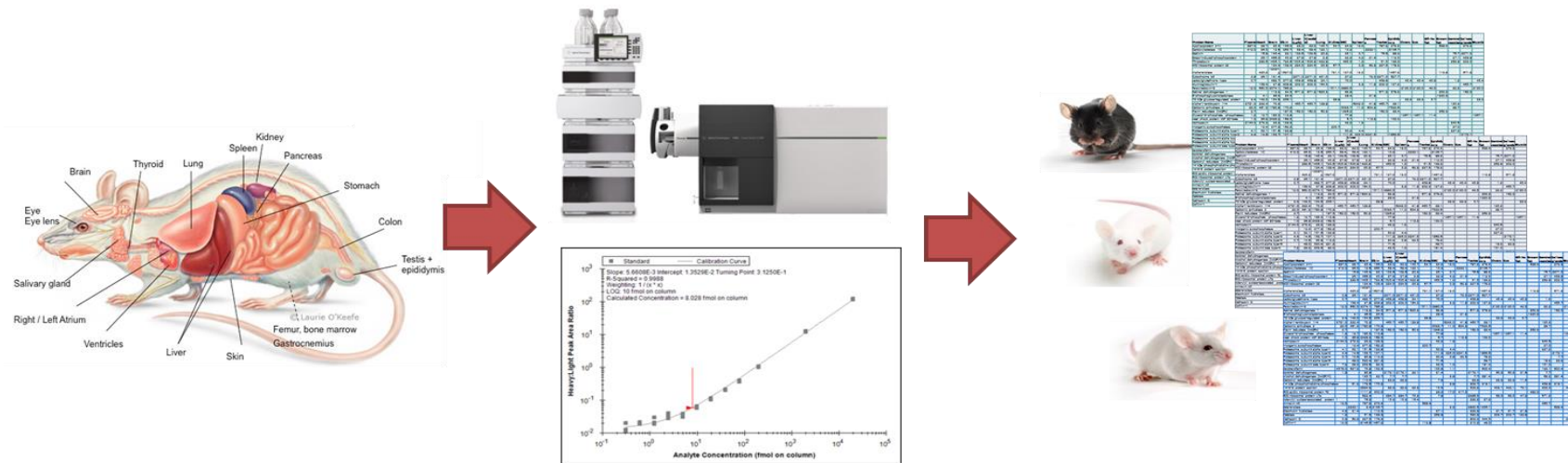


Development of Quantitative MRM Assays for the Measurement of 3,000 Proteins across 20 Mouse Tissues

Project Overview

- Develop MRM assays for 3,000 mouse proteins in 20 tissues
- Establish strain and tissue-specific protein concentrations
- Enable proteomic phenotyping of mouse models



Assay Development

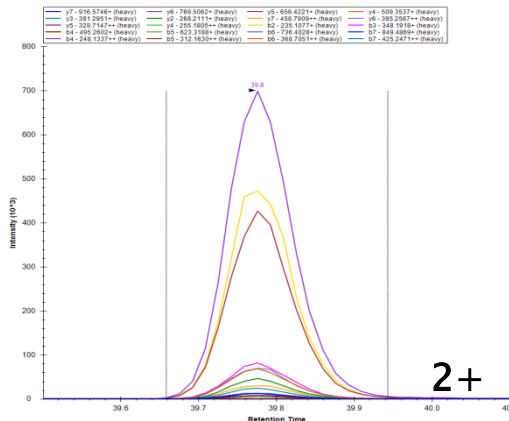


- 1–2 proteotypic surrogate peptides per protein
- Synthesize $^{13}\text{C}/^{15}\text{N}$ -labelled and unlabeled peptide standards

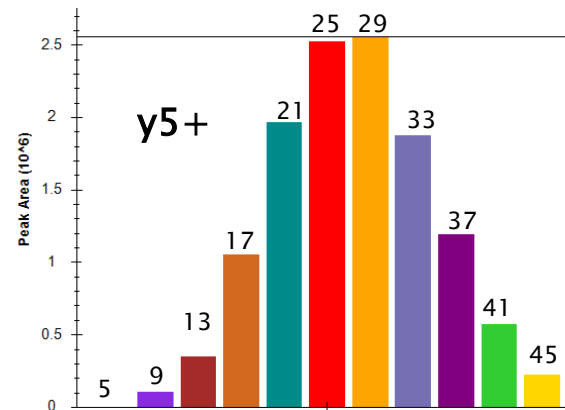
Assay Development



- precursor charge
- best product ion
- collision energy



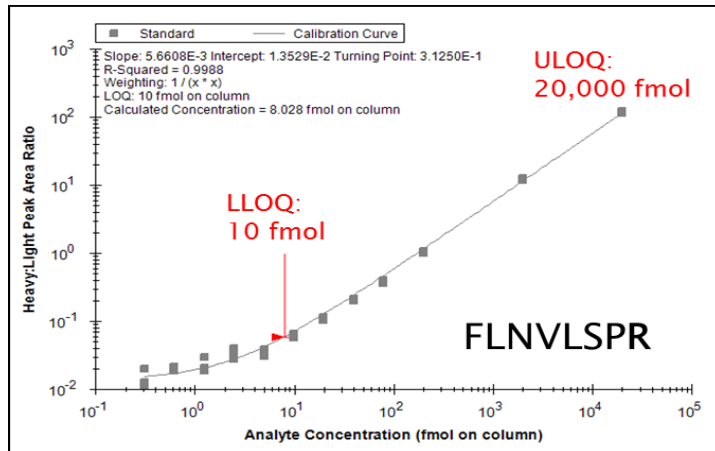
SFLFQLLK



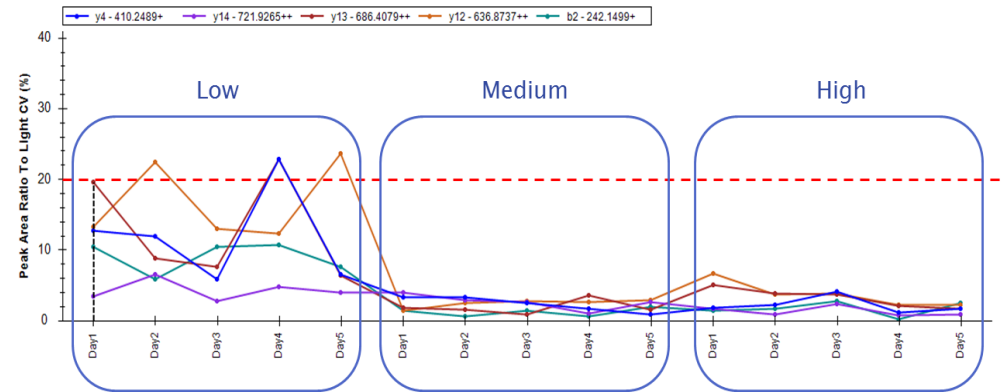


Assay development follows the CPTAC (Clinical Proteomic Tumor Analysis Consortium) guidelines

1) Response curve in tissue sample



2) Assay variability



Intra-day variability for LQAVEVWITHLAPGTK

Assay Development



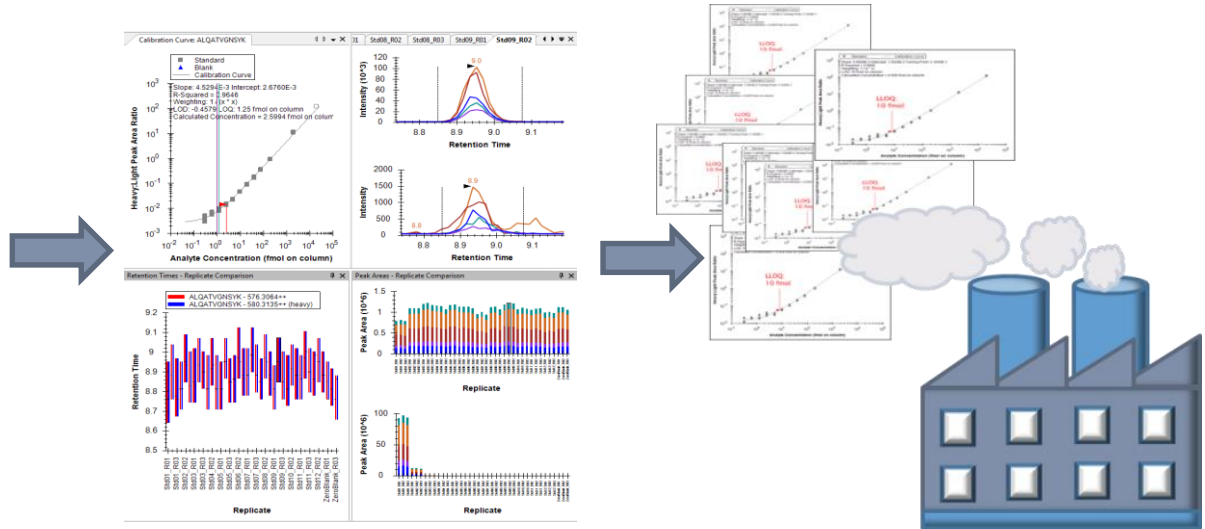
- Assays developed for >1 800 unique proteins in 11 tissues to date
- Protein measured in multiple tissues based expression

Plasma	730	Liver	554
Red Blood Cells	260	Eye	138
Lung	501	Heart	386
Spleen	265	Testes	259
Brain	609	Skin	141
Kidney	302	TOTAL UNIQUE	1803



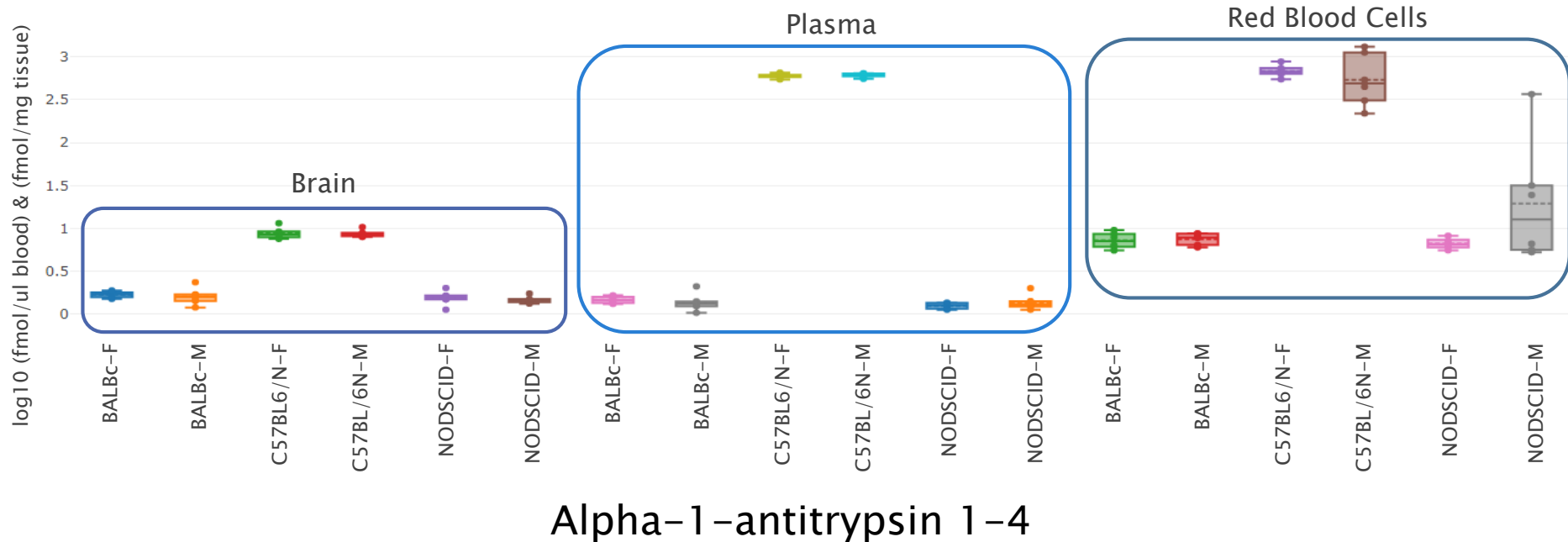
- Assays developed for >1 800 unique proteins in 11 tissues to date

~2000 peptides
>5,500 response curves
>4,300 variability experiments



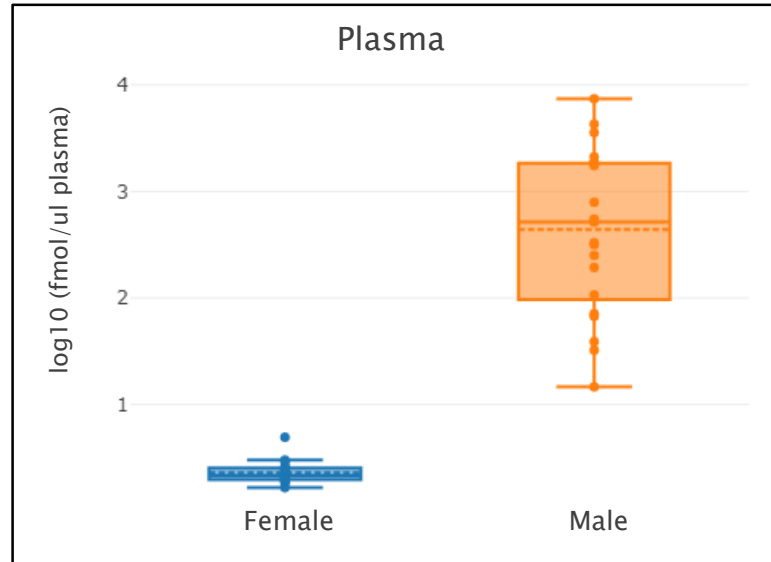
Establishing Normal Tissue Protein Concentrations

- Samples from 3 mouse strains, C57BL/6N, NOD SCID, BALB/c
- n=6 females and n=6 males



Establishing Normal Tissue Protein Concentrations

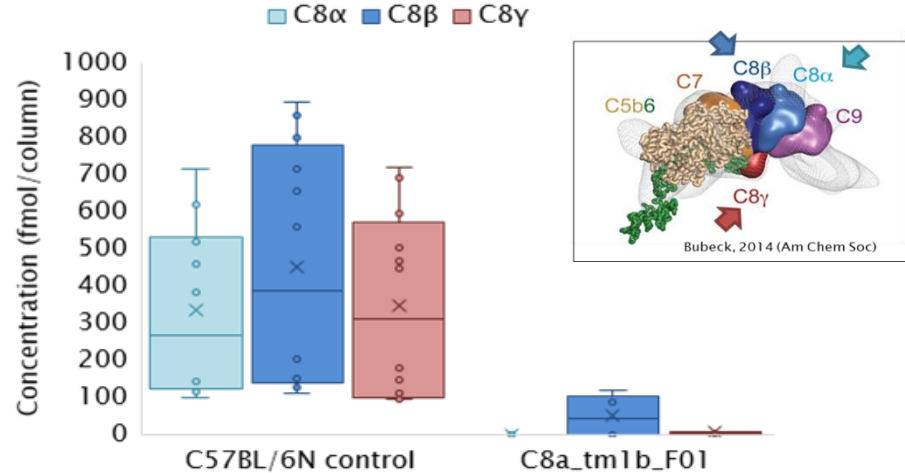
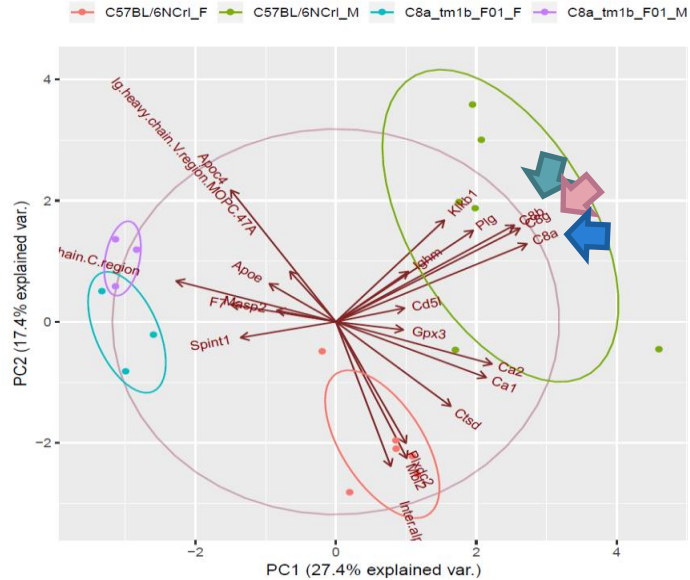
- Samples from 3 mouse strains, C57BL/6N, NOD SCID, BALB/c
- n=6 females and n=6 males



Alpha-1 B-glycoprotein

Knockout Strain Analysis Pilot Study #1

Example Knockout Profile: C8a



- All 3 chains of the C8 heterotrimer, C8α, C8β, and C8γ, are decreased in knockout mice vs control mice.

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Project Team

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