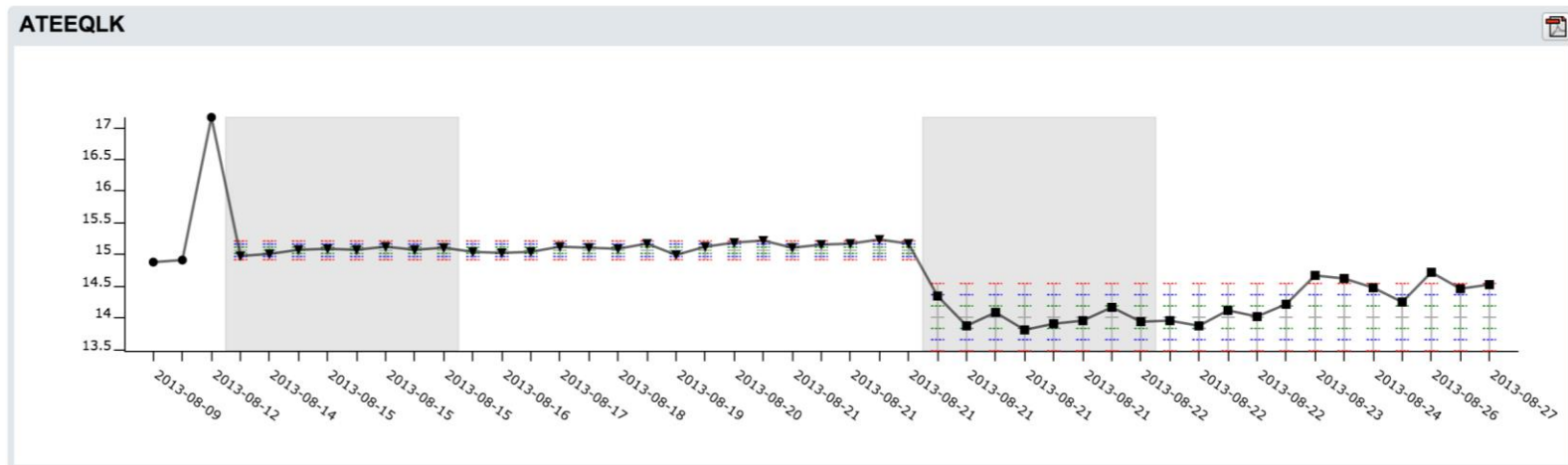# Quality Control Overview

- Monitor instrument performance over time
- Maintain history and capture context
- For labs doing SRM, PRM, and DIA
  - Spike in controls
  - Run separate targeted QC samples (SRM or PRM)
- For labs doing DDA
  - Run separate targeted QC samples (PRM)
- Works with any instrument vendor/type
- Inspired by Statistical Process Control in Proteomics (SProCoP), a Skyline external tool

# Quality Control Folders

- Fully automated workflow with AutoQC

- New folder type within Panorama

- Expected usage pattern is one folder per instrument

- User interface focused on showing QC data
  - Levey-Jennings and Pareto plots
  - Not oriented around displaying specific Skyline documents

# Basic Quality Control Workflow

- Create Skyline document with the precursors/peptides/transitions to monitor
  - Typically a small number of peptides (10ish)
- Run QC sample on instrument
- Raw data file auto-loaded into Skyline document
- Data automatically pushed to Panorama
- View current data, identify issues
- Repeat

- Shows metric values over time
  - Retention time, peak area, etc
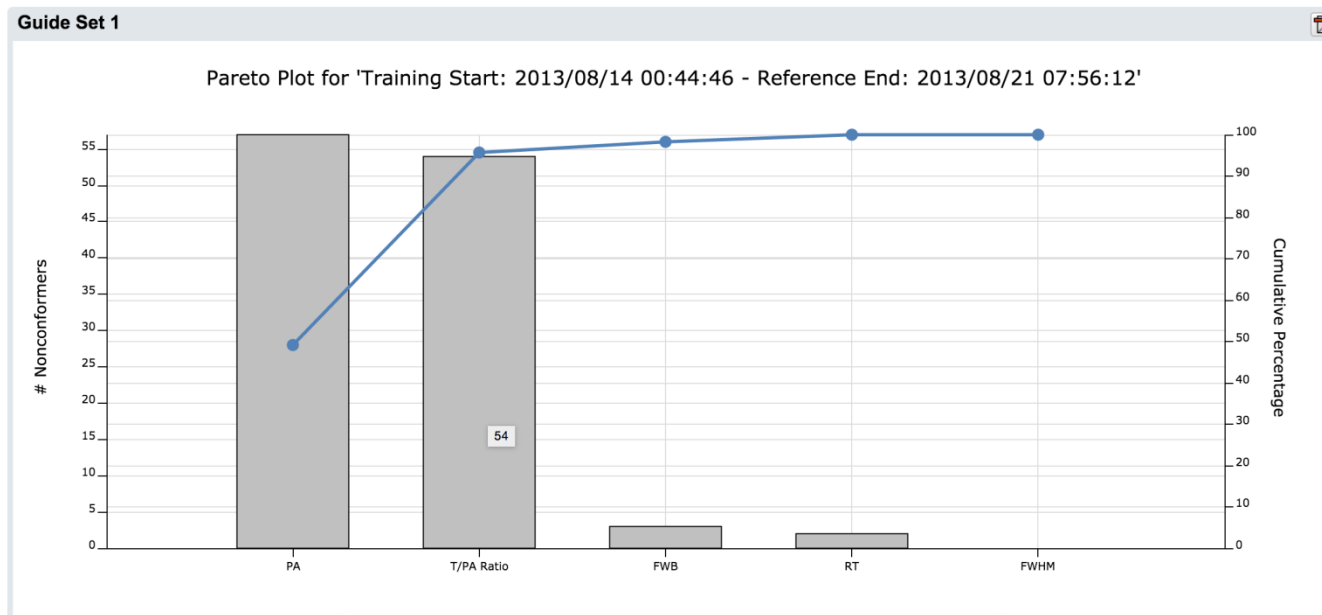- One plot/series per peptide
- Date grouping and zooming

- Establish normal ranges for the assay
- Training data
    - Find period of stable performance
    - Defined by start and end dates
    - Calculate mean and standard deviation
- Future data is compared with training data
- Can have multiple guide sets per folder

# Annotations

- Capture additional context about the data
- Customizable, but typical annotations include:
    - Instrumentation changes
    - Reagent changes
    - Technician changes
- Overlaid on Levey-Jennings plots
- Helpful for correlating changes with causes

# Pareto Plots

- Highlight most common QC issues
- One bar per metric
- New in upcoming 15.3 release

# Demo

- Filter plots by other criteria
  - Lab tech
  - Study type

- Cross-instrument dashboard
  - Monitor multiple folders at once
  - Highlight likely problems
  - Ensure QC data is flowing into Panorama

- Improved statistical tools

- Automated notifications