Precision Biomarker Laboratories

Cedars Sinai

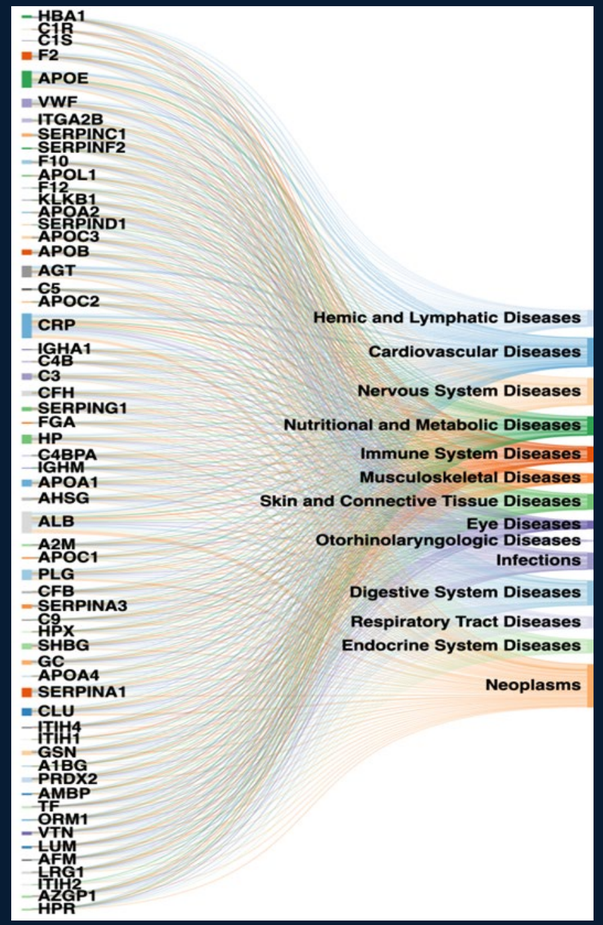
SKYLINE USER GROUP MEETING

ASMS

# Comparative Analysis of Skyline and SmartPeak Performance in Quantifying a 60-Biomarker Panel in Plasma from Inflammatory Bowel Disease Patients

**Dragana Noe, PhD**
Biomedical Scientist
PBL

# PBL Health Surveillance Panel (HSP)




- Off-the-shelf 60 biomarker targeted MRM assay
- 31 biomarkers on FDA approved list
- 111 monitoring peptides, 2 transitions per peptide
- Holistic view of health and wellness
- Insights for more than 14 disease states
- Measures inflammation, immunity, multiple organ function, or health status after surgery

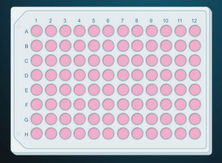
42 Healthy Controls

42 IBD Cases

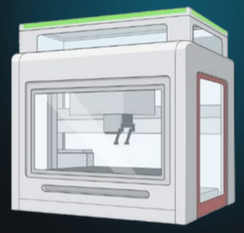
# Plasma Proteomics Automated Workflow

ProteoMarker™

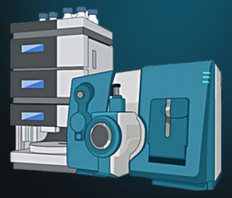
Sample Collection



Sample Preparation



LC-MS Aquisition



Data Analysis

ProEpic™

Proteomics Analysis Platform

# Skyline vs SmartPeak: Battle for Superior Peak Detection

LOD, LOQ, Linear Range

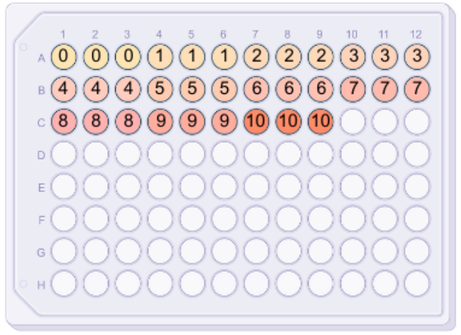
Reproducibility

Precision

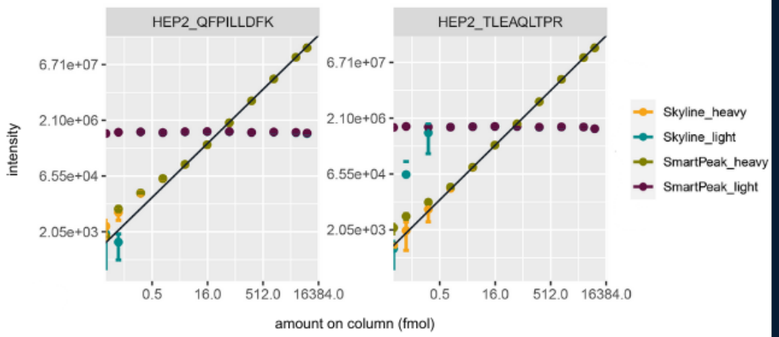
Endogenous Peptide Quant.

# Calibration plate | LOD/LOQ & Linear Range

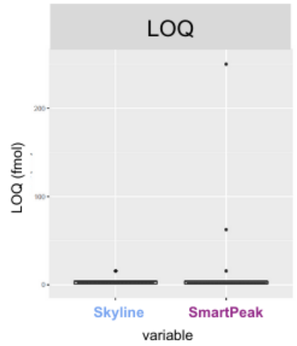
1




| HSP SIL | Amount on column (fmol) |
|---|---|
| 0 | 0 |
| 1 | 0.1 |
| 2 | 0.2 |
| 3 | 1.0 |
| 4 | 3.9 |
| 5 | 15.6 |
| 6 | 62.5 |
| 7 | 250 |
| 8 | 1000 |
| 9 | 4000 |
| 10 | 8000 |




2

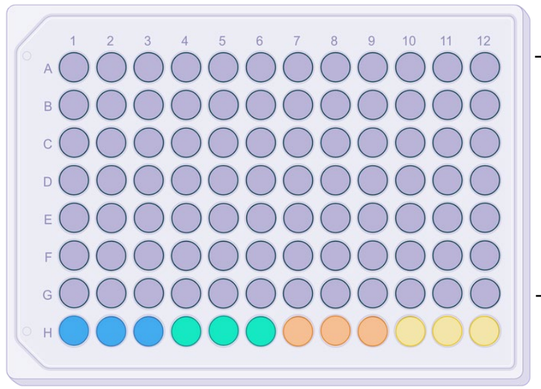



| HSP Heavy Peptide | LOQ Skyline (fmol) | LOQ SmartPeak (fmol) |
|---|---|---|
| A2GL_DLLLPQPDLR | 1.0 | 3.9 |
| A2MG_TEHPFTVEEFVLPK | 1.0 | 3.9 |
| AFAM_IAPQLSTEELVSLGEK | 1.0 | 3.9 |
| ANGT_SLDFTELDVAAEK | 1.0 | 3.9 |
| APOA4_LLPHANEVSQK | 1.0 | 3.9 |
| APOC2_TAAQNLYEK | 1.0 | 3.9 |
| APOE_AATVGSLAGQPLQER | 1.0 | 3.9 |
| C1R_MGNFPWQVFTNIHGR | 15.6 | 62.5 |
| FETUA_APHGPGLIYR | 3.9 | 250.0 |
| FETUA_FSVVYAK | 1.0 | 3.9 |
| IC1_GVTSVSQIFHSPDLAIR | 1.0 | 3.9 |

| HSP Heavy Peptide | LOQ SmartPeak (fmol) | LOQ Skyline (fmol) |
|---|---|---|
| ANT3_FATTFYQHLADSK | 1.0 | 3.9 |
| APOC2_TYLPAVDEK | 1.0 | 3.9 |
| APOC3_DALSSVQESQVAQQAR | 3.9 | 15.6 |
| CO3_TGLQEVEVK | 1.0 | 3.9 |
| CO5_TDAPDLPEENQAR | 1.0 | 15.6 |
| CRP_ESDTSYVSLK | 1.0 | 3.9 |
| FA10_MLEVPYVDR | 1.0 | 3.9 |
| ITIH1_VTYDVSR | 1.0 | 3.9 |
| ITIH2_IYLQPGR | 1.0 | 3.9 |
| THRB_ELLESYIDGR | 3.9 | 15.6 |
| VWF_ILAGPAGDSNVVK | 0.2 | 1.0 |
| ZA2G_AGEVQEPELR | 3.9 | 15.6 |

# IBD samples plate | Reproducibility & Precision

1




No of plates: 3
- 42 cases
- 42 controls

HSP SILs

CRP

Human Plasma (H)

Chicken Plasma (C)

H:C = 1:2

H:C = 2:1

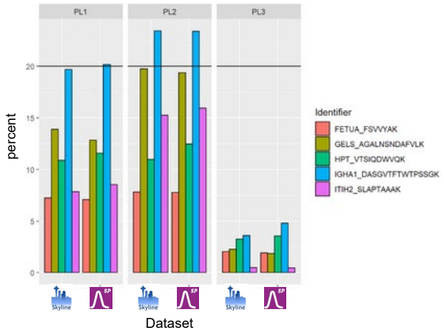
QC for intra-day CV (%)

Background signal

\+ Known ratio QC

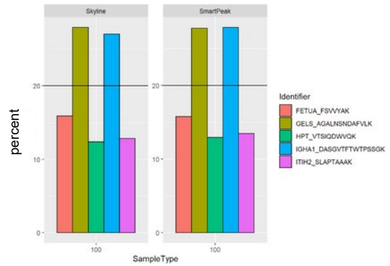
**Intra-day precision**

Light/Heavy Ratio

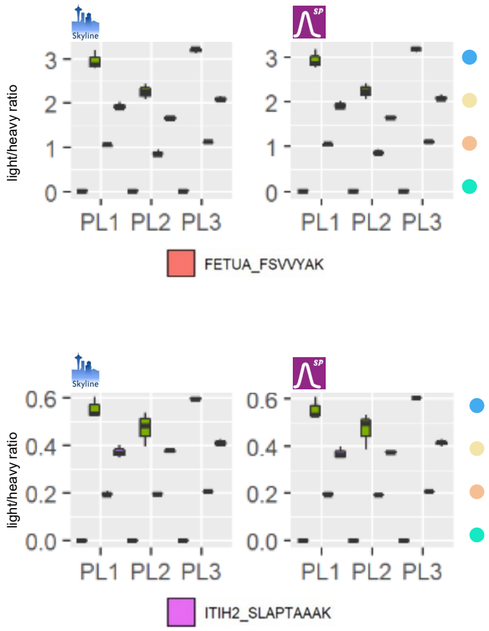



**Inter-day precision**

Light/Heavy Ratio




2

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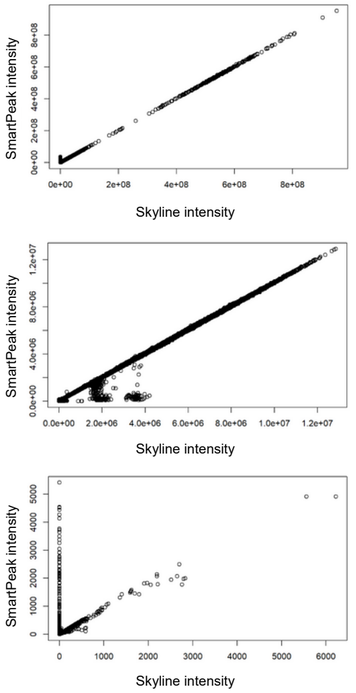
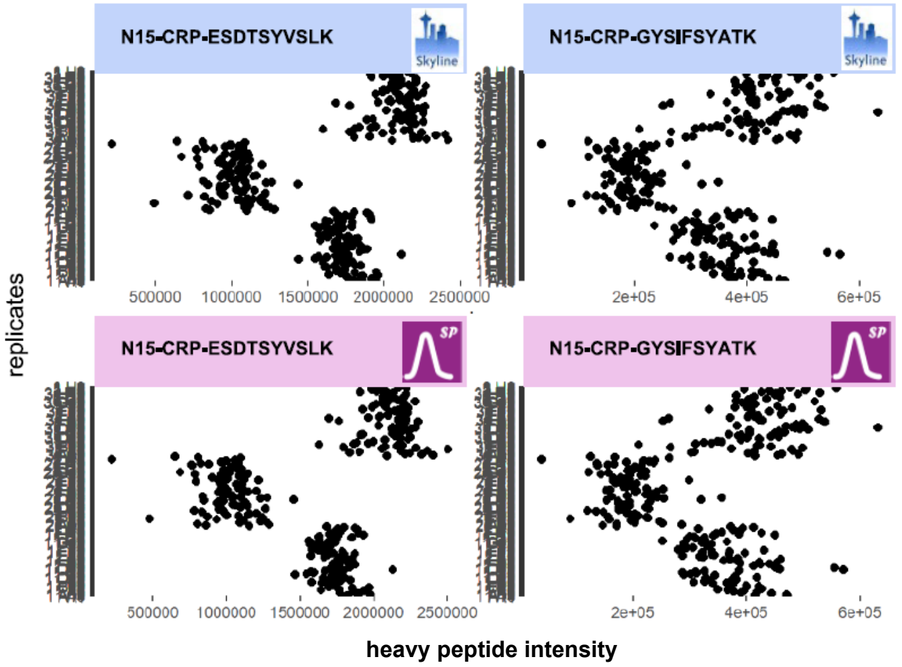


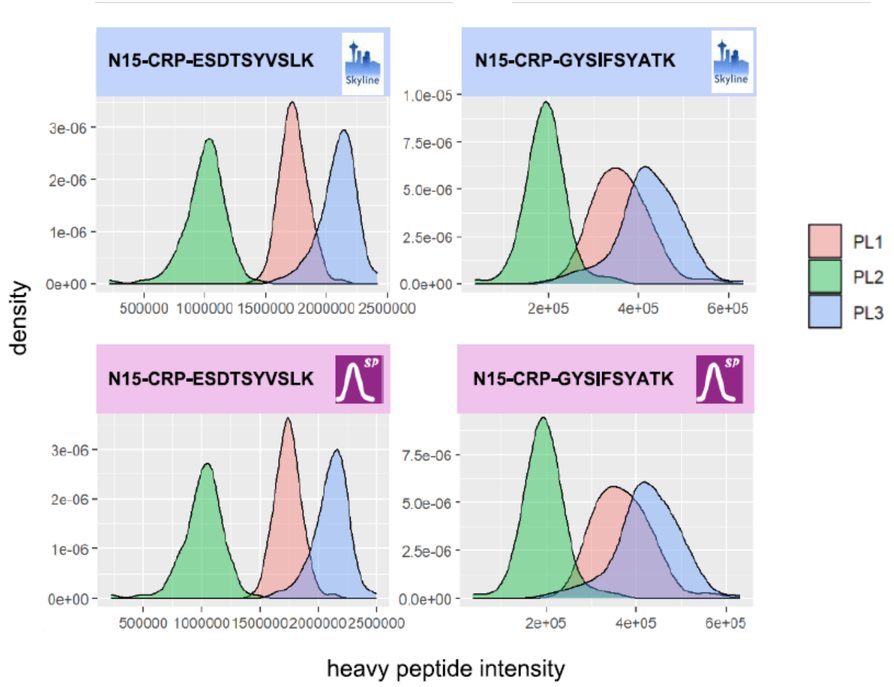

Light signal

Heavy signal

Light/Heavy Ratio

# Digestion QC | N-15 Labeled CRP



# Acknowledgements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## ACBRI

Jennifer Van Eyk, PhD


## Poster Presentation

Thu, June 6
Poster: ThP 101

**BOOTH #447**

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