Ca-HPP

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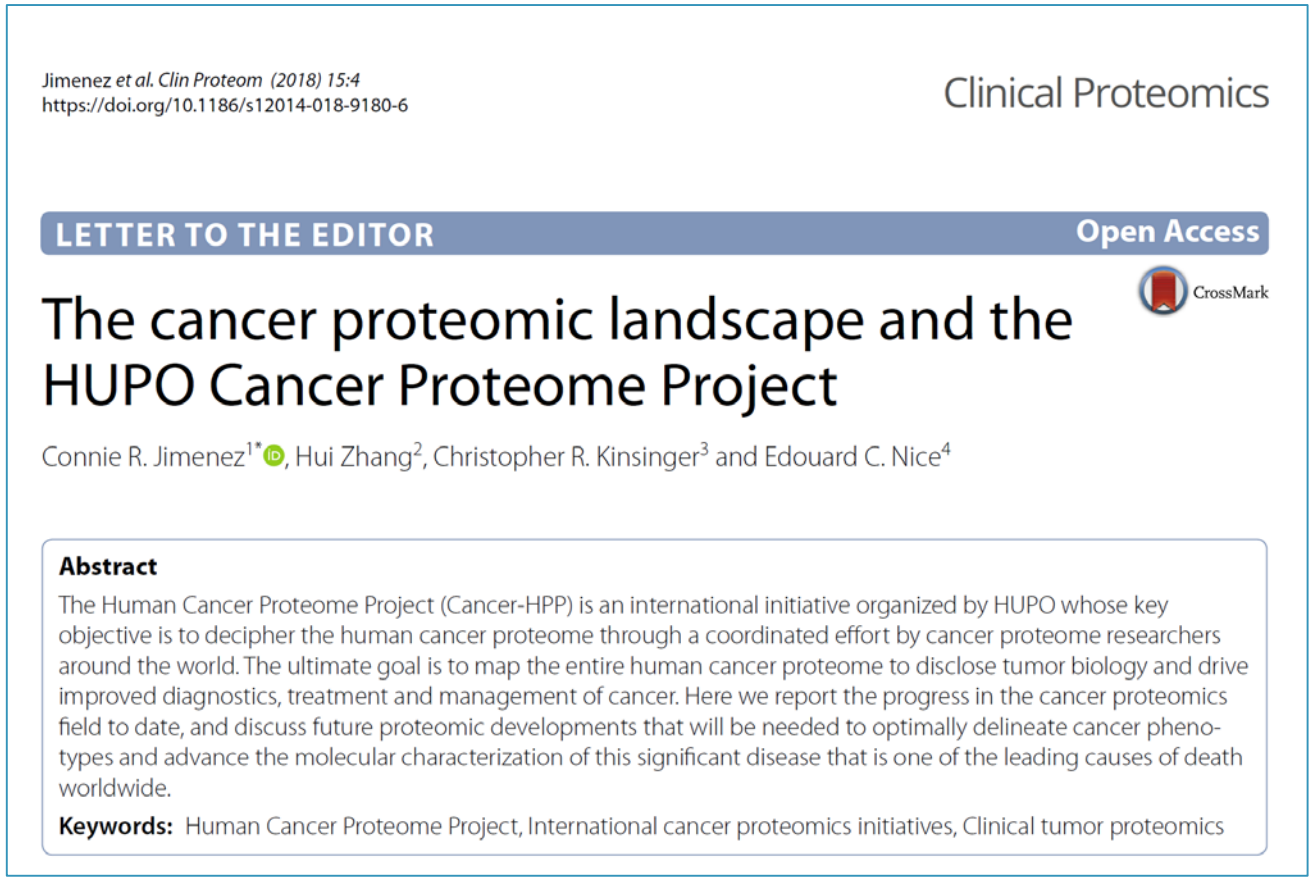
Ca-HPP History

2012 – established

2018 - outcomes



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Clinical Proteomics

LETTER TO THE EDITOR Open Access

The cancer proteomic landscape and the HUPO Cancer Proteome Project

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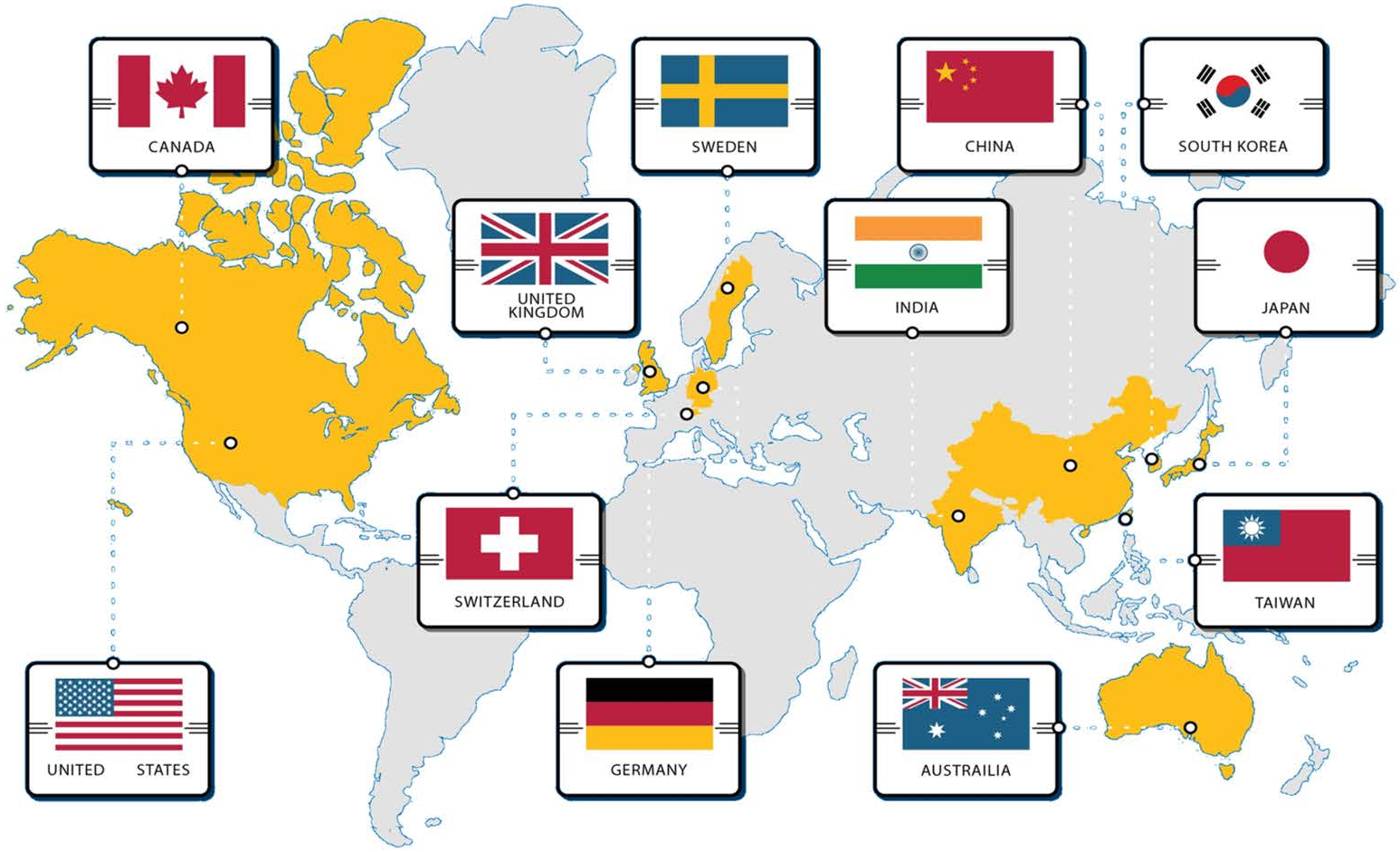
Abstract

The Human Cancer Proteome Project (Cancer-HPP) is an international initiative organized by HUPO whose key objective is to decipher the human cancer proteome through a coordinated effort by cancer proteome researchers around the world. The ultimate goal is to map the entire human cancer proteome to disclose tumor biology and drive improved diagnostics, treatment and management of cancer. Here we report the progress in the cancer proteomics field to date, and discuss future proteomic developments that will be needed to optimally delineate cancer phenotypes and advance the molecular characterization of this significant disease that is one of the leading causes of death worldwide.

Keywords: Human Cancer Proteome Project, International cancer proteomics initiatives, Clinical tumor proteomics

12 countries from **31** institutions

13 cancer types selected



ICPC

INTERNATIONAL CANCER PROTEOGENOME CONSORTIUM

ICPC Lessons Learned

Defined goal

- develop a cancer atlas that is representative of the diversity of people with their cancers around the world. *[involving proteogenomic comprehensive approaches]*

Implementation approach

- Coalesce research teams around the world with competency and interest in [clinical] proteogenomics science [CPTAC-like]
- Share SOPs, standards
- Data (DNA, RNA, protein, imaging) – publicly accessible

ICPC possible because of Cancer Moonshot and CPTAC

ICPC [and APOLLO] builds off (does not reinvent) existing program (CPTAC)

CPTAC grounded in rigor & reproducibility

Standards & calibrants

- Global round-robin study – SOPs, NCI-8 spike-in (today, PDX, NCI-7 mix)
- Targeted round-robin study…domestic and international (today, **Fit-for-Purpose** Targeted Assay Guidelines [Tiers – AACC, FDA, CDC, LabCorp, Quest, ARUP, NEP, Pharma, Academia…….MCP journal and ICPC members)

Tier 1	Tier 2	Tier 3
Clinical diagnosis	Research	Discovery
Internal standards	Internal standards	
Highly precise	Precise	Less precise
QC procedures		
Values repeatable	Trends repeatable	Large magnitude changes
One to a few analytes	10s-100s of analytes	10s-100s of analytes

Mol Cell Proteomics, 2014 13(3): 907-917

Industry adoption and paving path towards regulatory approval

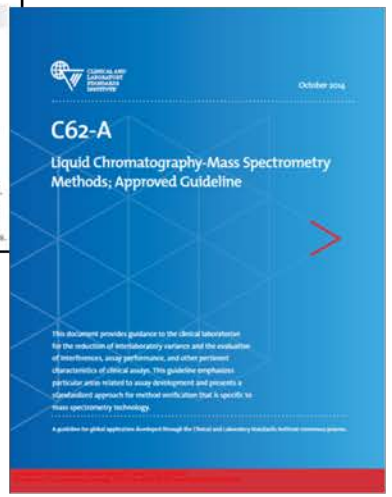
- Assays validated according to CPTAC guidelines and available for viewing on the CPTAC Assay Portal

MRM Proteomics

CIL
Cambridge Isotope Laboratories, Inc.

Paving a Path Towards Regulatory Approval

2016: FDA working group



2018: Ongoing

- CLSI document C64-A approved
- CPTAC on writing group

Industry examples, such as shown this week @HUPO

Thermo SCIENTIFIC

HeLa round-robin study

SureQuant Targeted Proteomic Assay (IP-MS → SRM)

Ca-HPP strawman

- Opportunity for Ca-HPP to serve as a vehicle for industry to pilot products (ultimate proteomics focus group)?
  - Must be mutually beneficial to both parties (industry *and* academia)

- Long-term goal [pan-cancer studies]
  - Standards (common analytical reference material (high priority), targeted proteomics panels (which adhere to widely-adopted analytical metrics), etc…..