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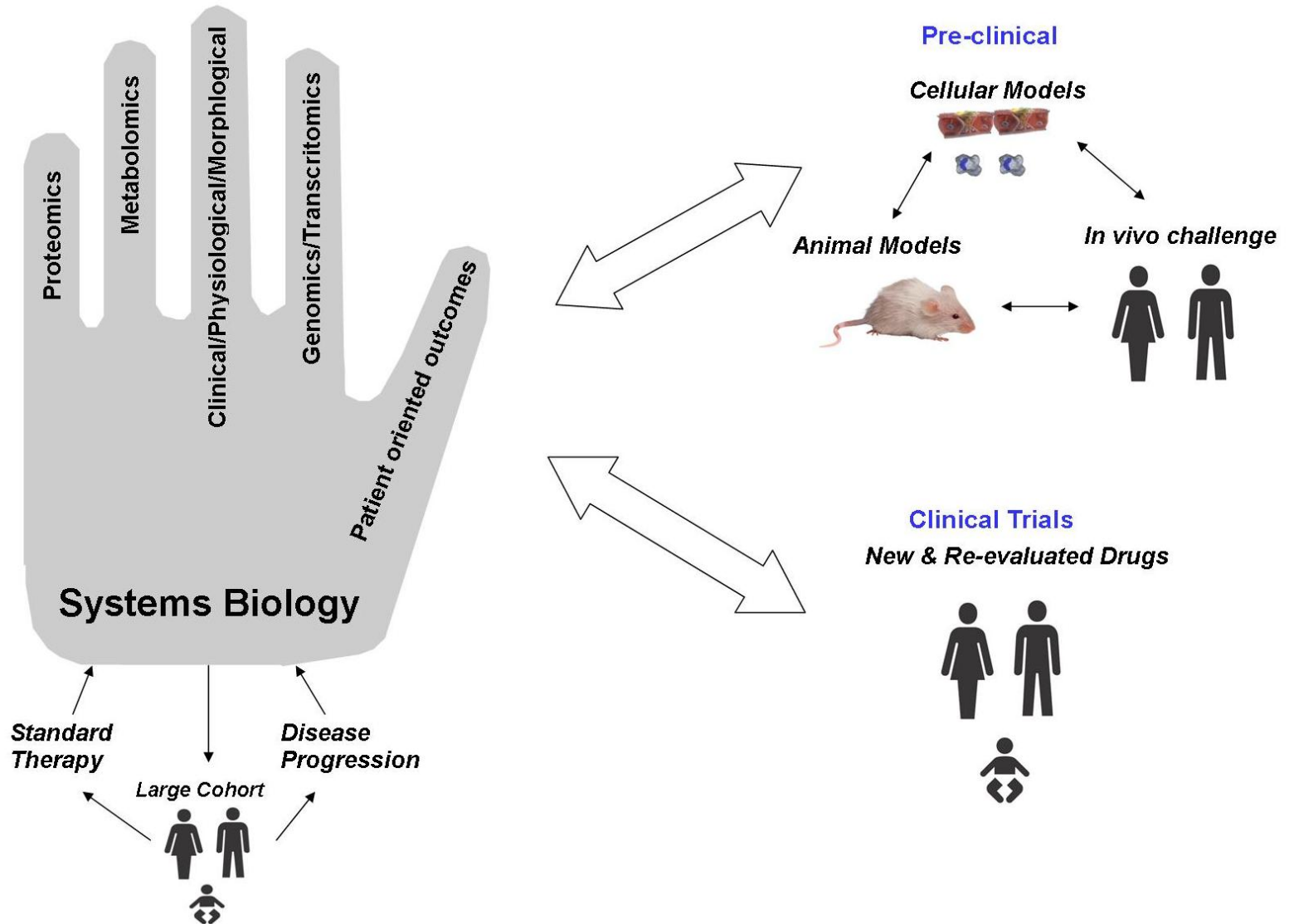
Knowledge Management in UBIOPRED

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Dept of Computing

UBIOPRED Overview

- Unbiased Biomarkers for the Prediction of Respiratory Disease Outcomes
 - Innovative Medicines Initiative call topic: *Understanding Severe Asthma*
 - *10 Pharma, 20 Academic Medical Centres, 10 other*
- Key Highlights
 - Publication of consensus papers defining 1) severe asthma and 2) systems medicine approach
 - 1st patient recruited into the clinical study last week
 - Cross Industry Data Sharing

U-BIOPRED Aim: Handprint



Three challenges in for Knowledge Management UBIOPRED

- Organisational Complexity
 - Complex consortium
- Scientific Complexity
 - End to End translational Study
- Data Complexity
 - Clinical, Omics (7), Imaging, Histology

Knowledge Production Process

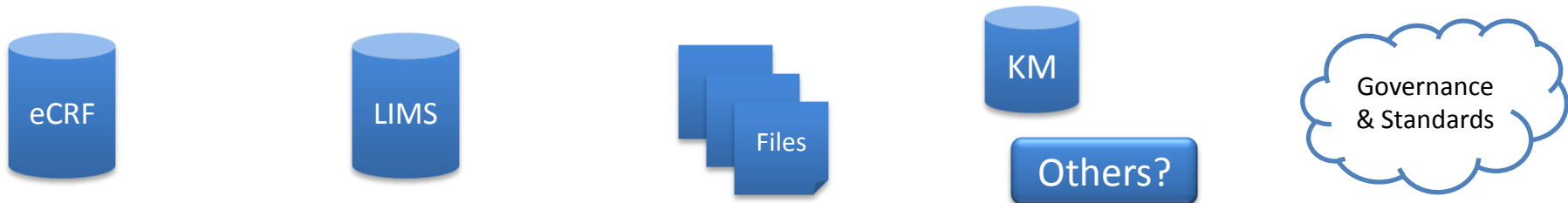
Process:



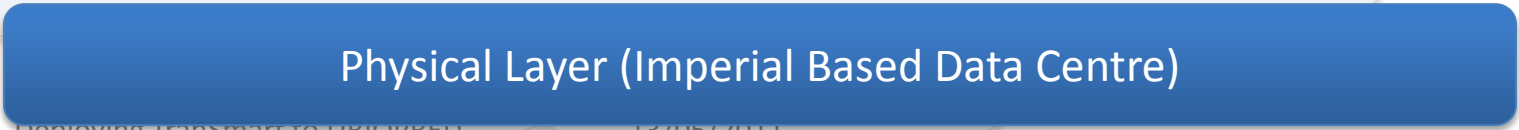
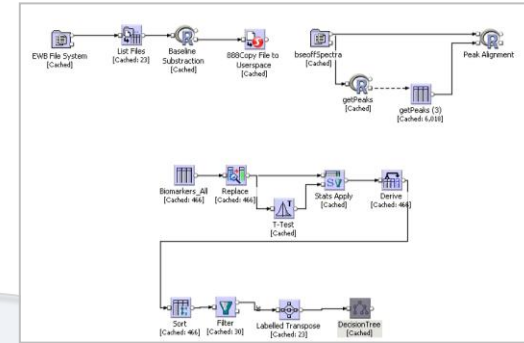
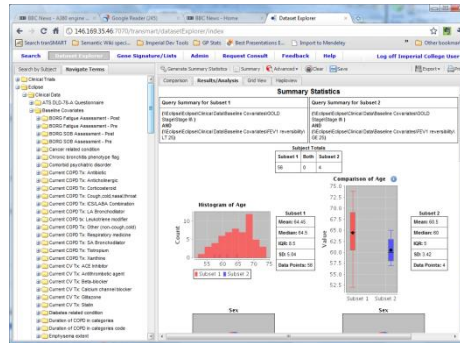
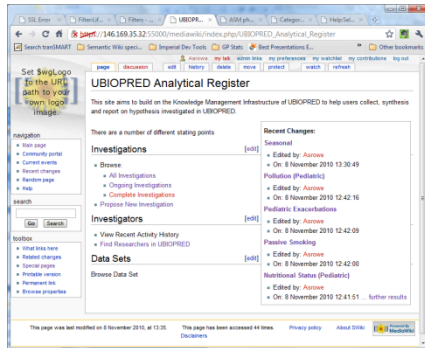
Procedure:



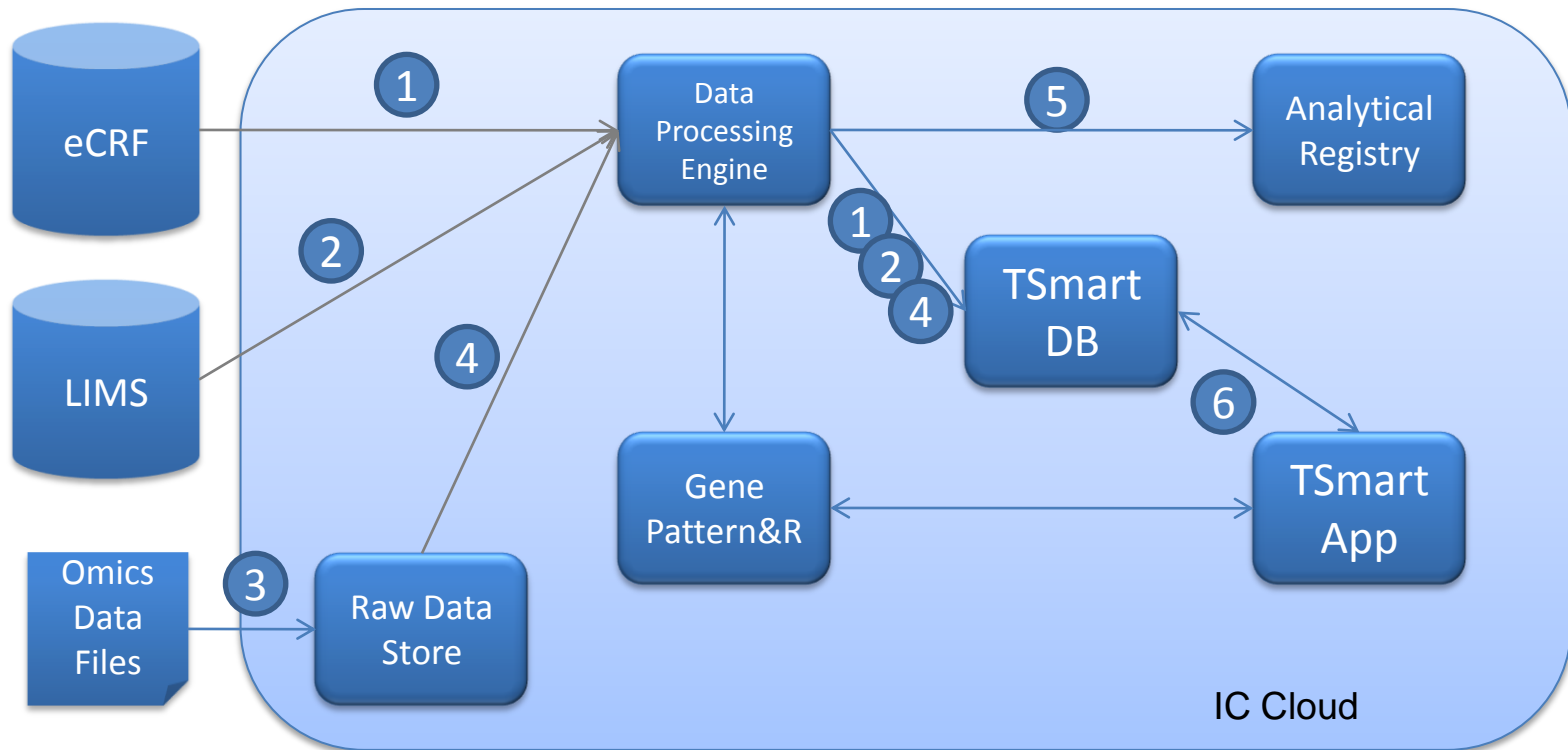
Technology:



Knowledge Management Architecture



Dataflow & Key Transformations



1. Transform and Load Clinical Data into TranSmart
2. Transform and Load Inventory Data into TranSmart
3. Upload and Index Raw Data
4. Load processed Omics Data into TranSmart using pre-processing functionality in R
5. Update Completion Information in Analytical Registry
6. TranSmart application accesses datamart and R server

TranSmart use in UBIOPRED ECLIPSE pilot

- IMI in action (J&J's Software, GSK's ECLIPSE data, academic execution)
- 3000 Patients, 1800 Clinical Attributes, Blood & Sputum Samples
- Data to be provided in 3 Tranches dependent on success
 - Tranche 1: Clinical Data for 220 Patients that have micro-array data
 - Tranche 2: The associated micro-array data for 220 group
 - Tranche 3: Longitudinal data for micro-array data for 220 group
 - Tranche 4: Full Clinical Data for all patients
- **15 days total from install to deploy to users**

Dataset Explorer

146.169.35.46:7070/transmart/datasetExplorer/index

Search Dataset Explorer Gene Signature/Lists Admin Request Consult Feedback Help Log off Imperial College

Generate Summary Statistics Summary Advanced Clear Save Export Print

Comparison Results/Analysis Grid View Haploview

normal FRC (%)—bA GE 120 AND (\\Eclipse\Eclipse\Clinical Data\Plethysmography\GOLD Stage\)

normal FRC (%)—bA GE 0 AND (\\Eclipse\Eclipse\Clinical Data\Plethysmography\GOLD Stage\)

Subject Totals

Subset 1	Both	Subset 2
43	43	134

Histogram of Age

Comparison of Age

Subset 1

Mean: 65.14
Median: 65
IQR: 7
SD: 5.09

Subset 2

Mean: 64.52
Median: 65
IQR: 8
SD: 5.52
Data Points: 134

Recruitment Analysis – Built in less than 5 minutes

UBIOPRED Analytical Register for Managing Study Research

Tools to find hypothesis, people and data within the project

Activity of people in the project

The screenshot shows a web browser window displaying the UBIOPRED Analytical Register. The page title is "UBIOPRED Analytical Register". Below the title, there is a navigation bar with buttons for "page", "discussion", "edit", "history", "delete", "move", "protect", "watch", and "refresh". The main content area is divided into several sections: "Investigations", "Investigators", "Data Sets", and "Recent Changes". The "Investigations" section includes a "Browse:" menu with options like "All Investigations", "Ongoing Investigations", "Complete Investigations", and "Propose New Investigation". The "Investigators" section has options for "View Recent Activity History" and "Find Researchers in UBIOPRED". The "Data Sets" section includes a "Browse Data Set" link. The "Recent Changes" section lists several recent edits, including "Seasonal", "Pollution (Pediatric)", "Pediatric Exacerbations", "Passive Smoking", and "Nutritional Status (Pediatric)", each with the editor's name "Asrowe" and the date and time of the edit. On the left side, there is a "navigation" sidebar with links like "Main page", "Community portal", "Current events", "Recent changes", "Random page", and "Help". Below that is a "search" box with "Go" and "Search" buttons. At the bottom, there is a footer with information about the page's last modification, access count, and links to "Privacy policy", "About SWiki", and "Disclaimers". A "Powered By MediaWiki" logo is also present in the bottom right corner.

Drill Down through Study Metadata

Browse data: UBIO Investigations

Click on one or more items below to narrow your results.

Choose a category:

- Cohort (28)
- Researcher (150)
- UBIO Investigations (65)
- UBIO:Investigators (1)

Investigation Category:

- Biomarkers (7) · Clinical (16) · Genotypes (1) · Inflammation/remodeling (4) · Paediatric (15) · Preclinical (9) · Physiological (2) · Virus (2)

Investigators:

- Ana Sousa (65) · Anthony Rowe (65) · Peter Sterk (64)

Life Cycle:

- Ongoing (1) · Proposed (64)

Showing below up to 65 results starting with #1.

View (previous 250 | next 250) (20 | 50 | 100 | 250 | 500)

A

- ASM phenotypes
- Adherence
- Adherence (Pediatric)
- Age of Onset
- Age of Onset (Pediatric)
- Airway Location
- Airway Location (Pediatric)
- Antenatal
- Asprin
- Asprin (Pediatric)

B

- BALT
- BHR
- Biomaker Stability

F cont.

- Fluctuation analysis

G

- GWAS
- Gender
- Gender (Pediatric)

H

- Health Utilization

I

- Immunohistochemistry
- Inflammatory phenotypes
- Influence of pollution
- Irreversibility
- Irreversibility (Pediatric)

O cont.

- Oxidative stress

P

- Passive Smoking
- Pediatric Exacerbations
- Persistence
- Pollution
- Pollution (Pediatric)

S

- Seasonal
- Small airways
- Smoking
- Smoking (Pediatric)
- Steroid sensitivity

navigation

- Main page
- Community portal
- Current events
- Recent changes
- Random page
- Help

search

toolbox

- Special pages

Details built up collaboratively

The screenshot shows a web browser window displaying a MediaWiki page titled "Steroid sensitivity". The browser's address bar shows the URL https://146.169.35.32:55000/mediawiki/index.php/Steroid_sensitivity. The page header includes navigation tabs like "page", "discussion", "edit with form", "edit", "history", "delete", "move", "protect", "watch", and "refresh". The user "Asrowe" is logged in, with links for "my talk", "admin links", "my preferences", "my watchlist", "my contributions", and "log out".

The main content area features the "Steroid sensitivity" title and a table with the following data:

Research Hypothesis	Explore the different clinical, biological and pharmacological factors that indicate asthma sensitivity.
Proposed By	Ana Sousa
Contributors	Anthony Rowe , Peter Sterk
Investigation Status	Ongoing
Result Summary	
Conclusions	
Link to TranSmart	http://146.169.35.46:7070/transmart/experimentAnalysis/downloadanalysisexcel/67067464
Hypothesis Category	Biomarkers

Below the table, it says "Page Last Edited By: [Asrowe](#)". A blue callout box with the text "Critically linking back to TranSmart" has an arrow pointing to the "Link to TranSmart" entry in the table. Below the table, there is a category box containing "Category: UBIO Investigations".

The left sidebar contains a "U-BIOPRED" logo, a "navigation" menu with links like "Main page", "Community portal", "Current events", "Recent changes", "Random page", and "Help", a "search" box, and a "toolbox" with links like "What links here", "Related changes", "Special pages", "Printable version", "Permanent link", and "Browse properties".

The footer of the page includes the text "This page was last modified on 9 November 2010, at 14:38. This page has been accessed 9 times." and links for "Privacy policy", "About SWiki", and "Disclaimers". A "Powered By MediaWiki" logo is also present.

Three challenges in for Knowledge Management UBIOPRED

- Organisational Complexity
 - Analytical Registry
- Data Complexity
 - TranSMART
- Scientific Complexity
 - New analytic methods under Development

