



Technology development and implementation: Biomarker & Metabolomic Phenotyping





MLC Pathology

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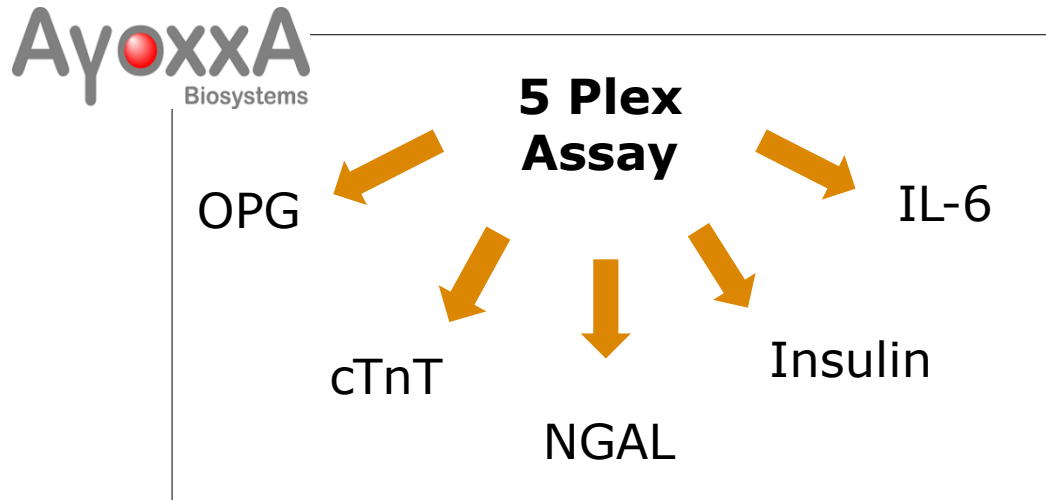


Infrafrontier Biomarker Phenotyping



- Partners:    
- Aim: Establish & evaluate biomarker multiplex assays
Small volumes, compatible, amenable to automation
- Shortlisted biomarkers according to emerging themes:

Skeletal, Cardiac, Renal, Metabolic & Inflammation

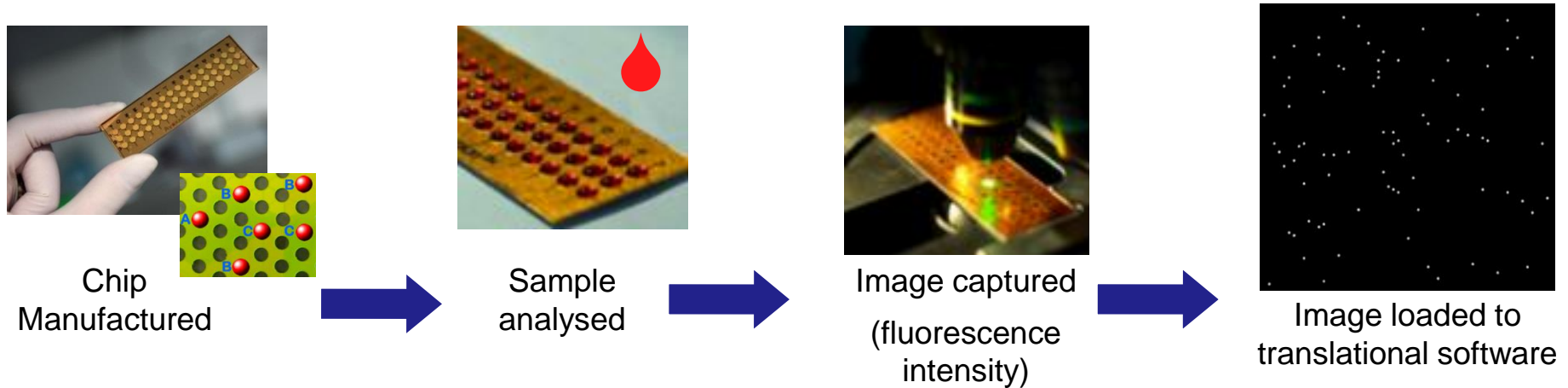


- Provided samples from suitable mutant lines ranges for baseline & affected mice

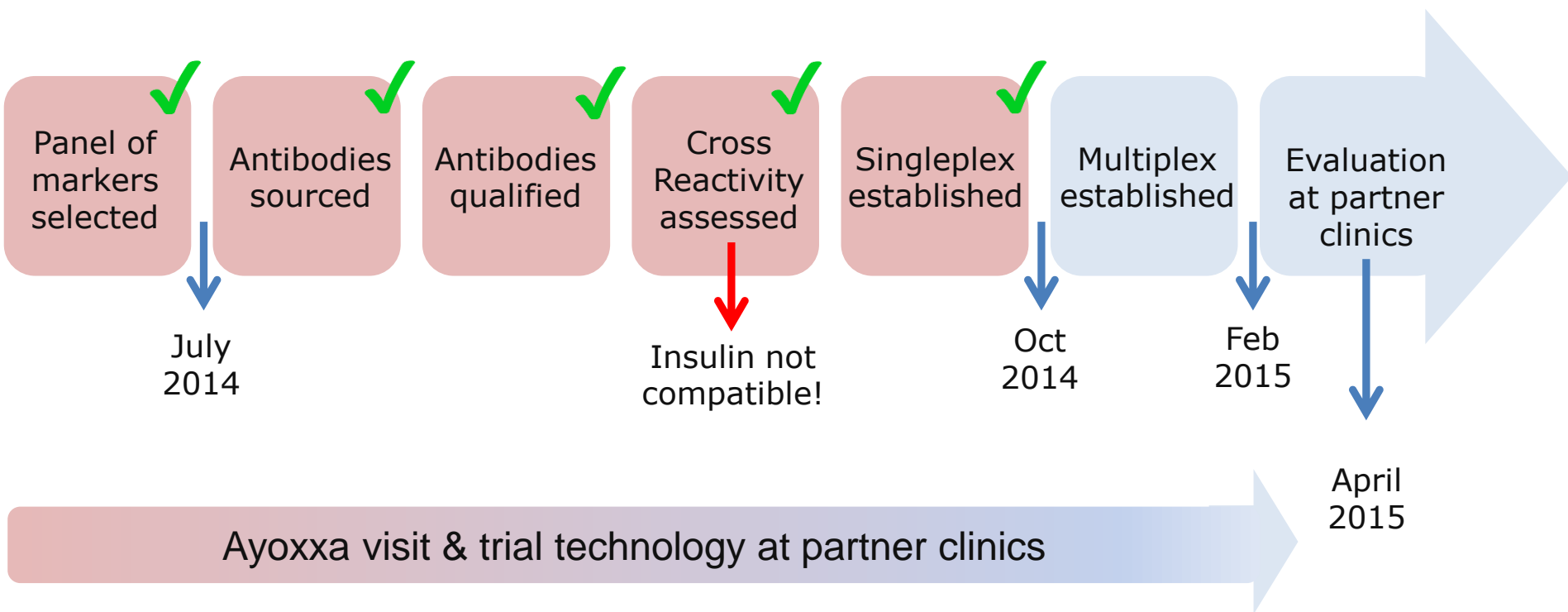
Ayoxxa Biosystems: Technology Overview



- Up to 30K Beads in 80 microwells on glass slide
- 30K single measurements in 3 μ l sample
- Greater sensitivity, wider dynamic ranges (up to 5 log)
- Robust and reproducible (inter-replicate CV<10%)



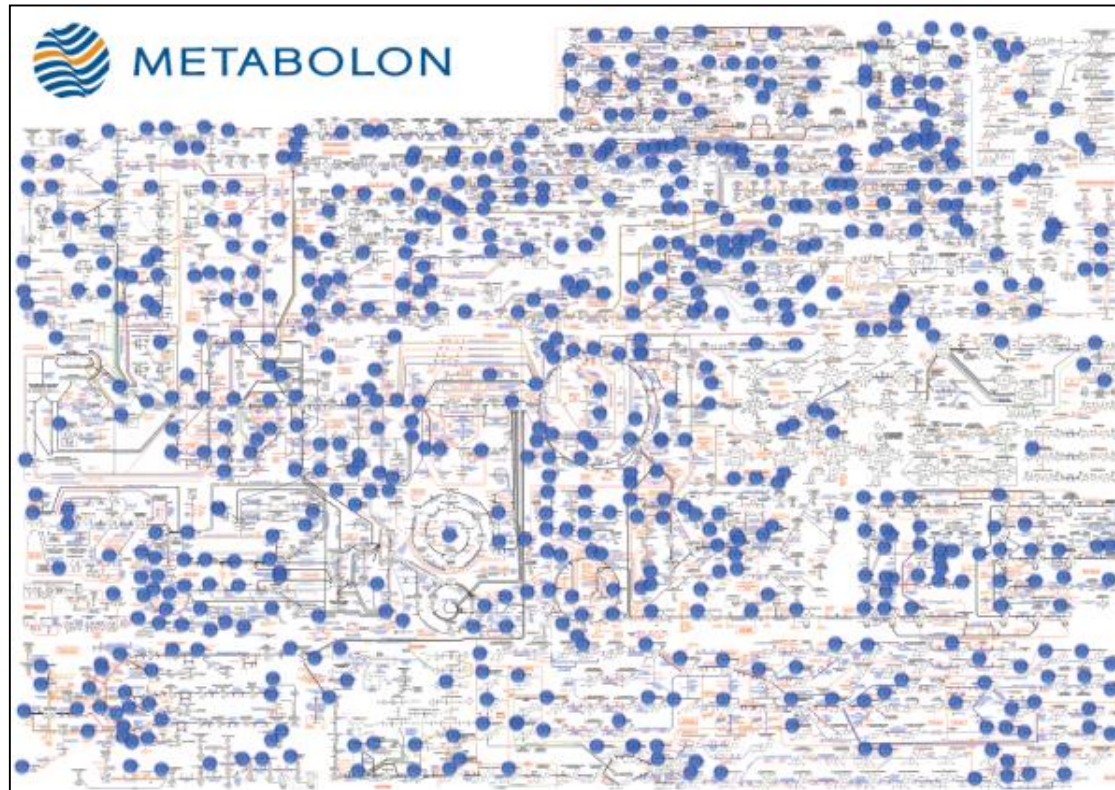
Ayoxxa multiplex: progress to date



Metabolomics Pilot



- BCM (Art Beaudet & John Seavitt)
- Metabolon, North Carolina
- MS-based analysis of >500 metabolites in 100ul sample





Metabolomics Pilot

- BCM (Art Beaudet & John Seavitt)
- Metabolon, North Carolina
- MS-based analysis of 500+ metabolites in 100ul of plasma
- Amino acids, carbohydrates, vitamins / cofactors, lipids, nucleotides, peptides, xenobiotics & energy metabolism
- Widely used clinically, growing database to cross-reference against human disease

Metabolomics pilot



Plasma, brain & liver from 16 Hom viable KO lines
& embryos from 4 Hom lethal lines



Extraction of metabolites



Ultra high performance LC/MS and GC/MS



Automated peak detection & determination of relative ion conc



Match ion features to compound identities (Metabolyzer[®] software)



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An atlas of genetic influences on human blood metabolites

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