

# COMPANY OVERVIEW

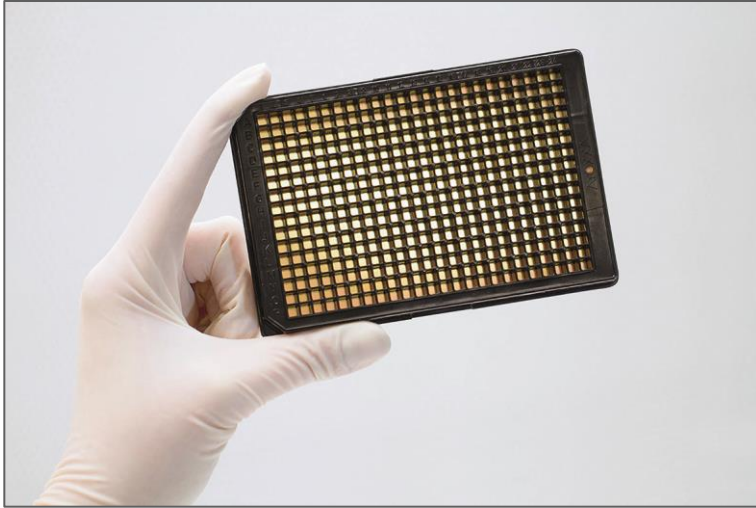


**MARKUS ZUMBANSEN**

IMPC INDUSTRY LIAISON WORKSHOP

BARCELONA

13.11.2014

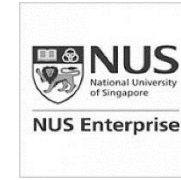
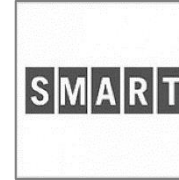


Innovative, patented **beads-on-a-chip technology** for **multiplex protein analysis** – thousands of datapoints from one droplet of sample (3  $\mu$ L)

## FROM INNOVATION TO COMMERCIALIZATION

Founded 2010 in Singapore

- AYOXXA secured grants in Singapore



Series A-financing round 2011/12 (3 Mio. EUR)



Established HQ in Cologne 2012



Series B-financing round 2014 (9 Mio. EUR)

- Extending round of institutional & private investors





## *BIOCAMPUS COLOGNE*

- Company HQ's since 2012
- Biotech hub in Central Europe
- Cologne Center of Academic Excellence
- Overall space:
  - Approx. 700 m<sup>2</sup>
  - ...and growing
- 2 International airports nearby



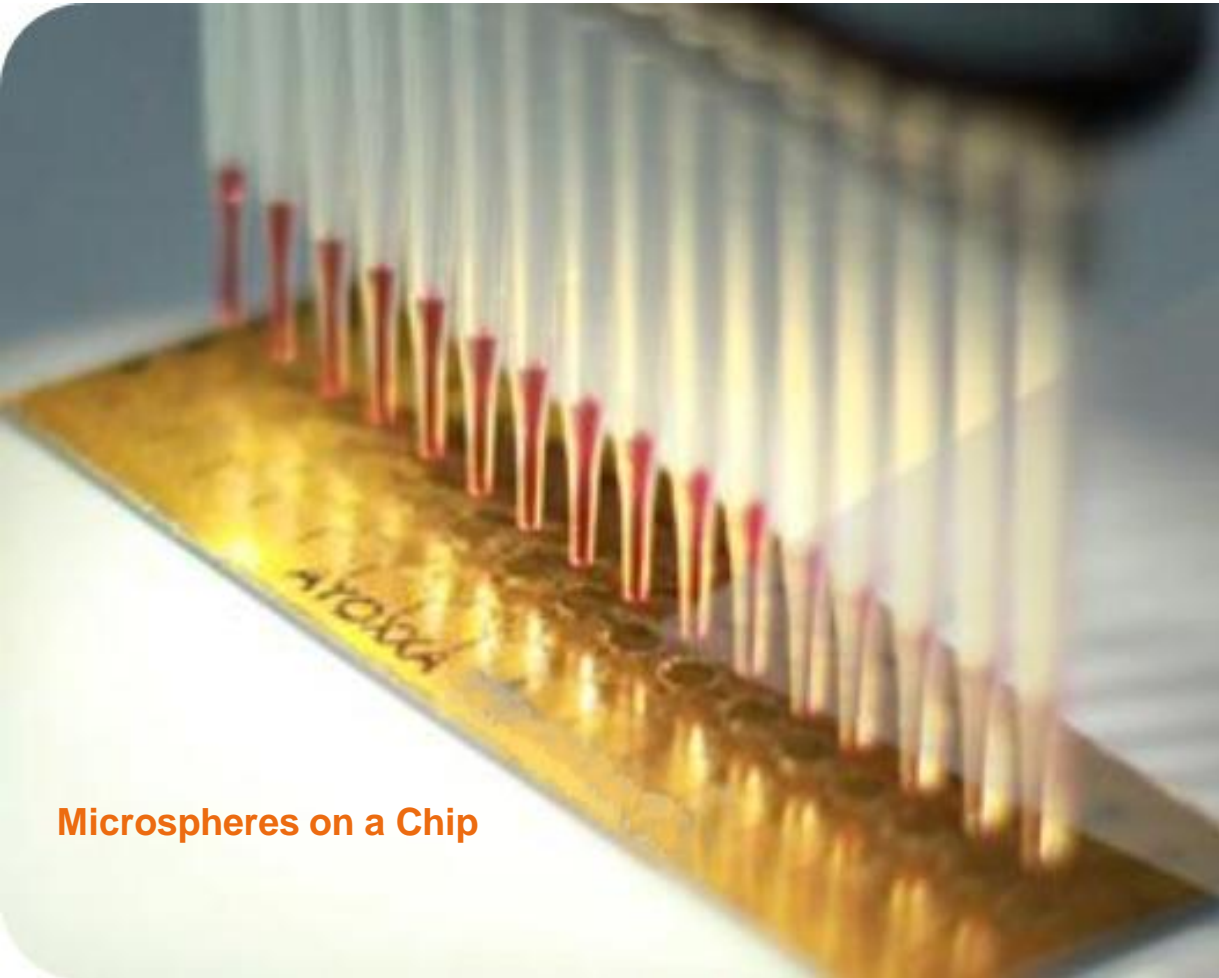




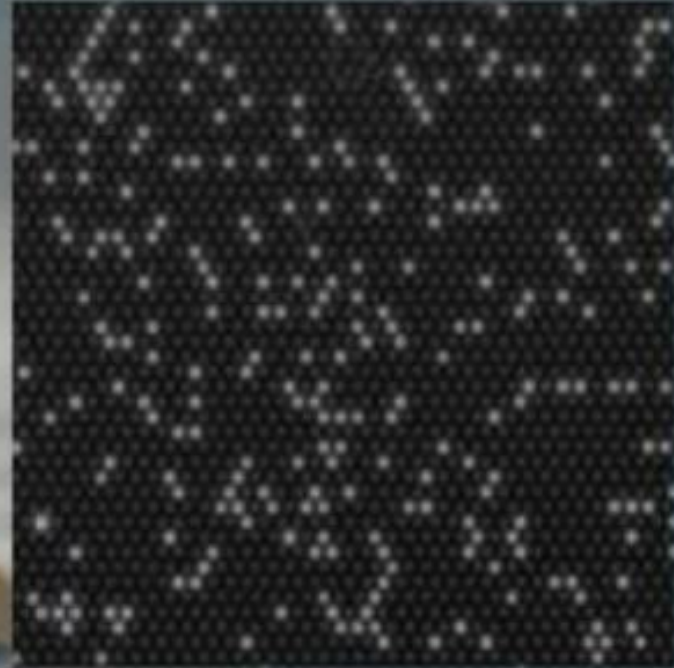
**26 in Cologne**



**3 in Singapore**

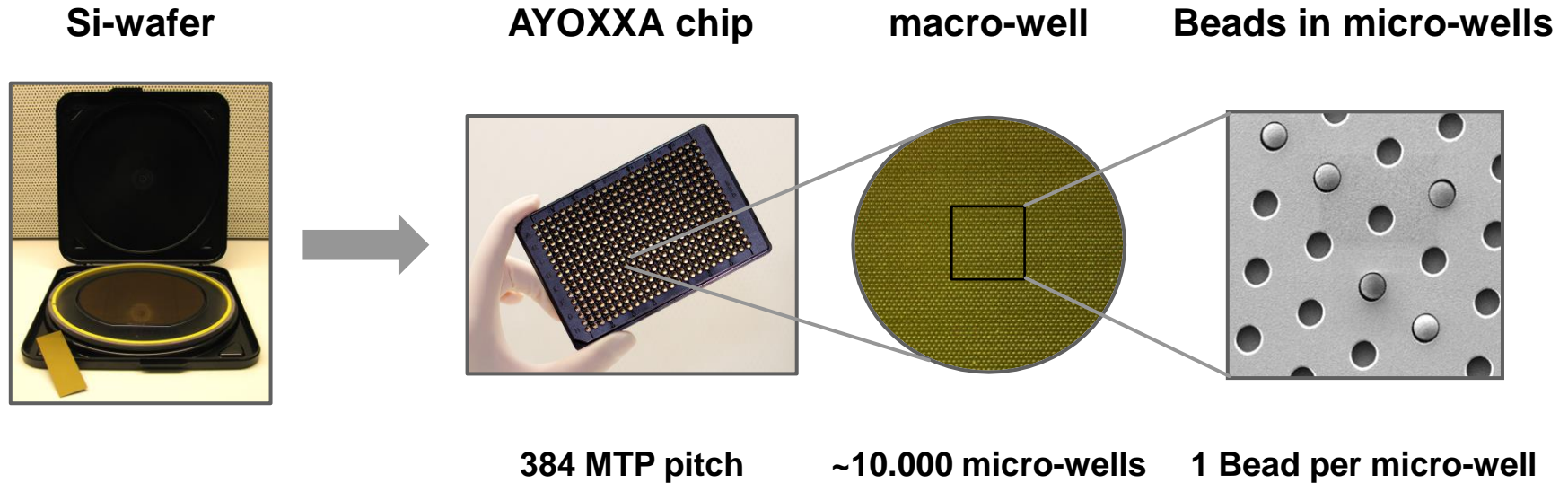


Microspheres on a Chip



*INNOVATION*  
*SMART AS SIMPLE*







AYOXXA

Customer

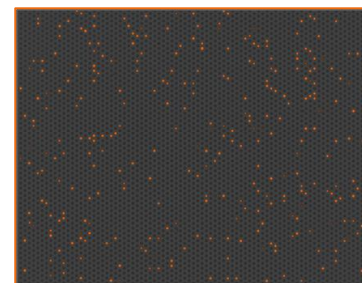
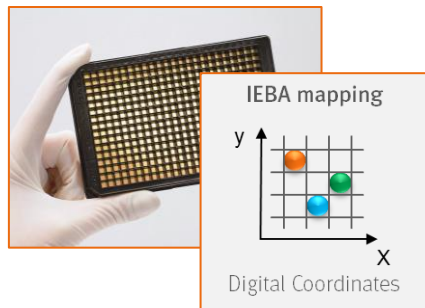
Production

Assay

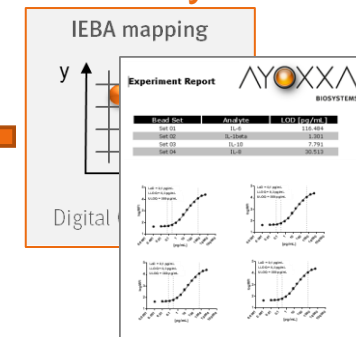
Readout

Analysis

## Chip / IEBA MAPPING

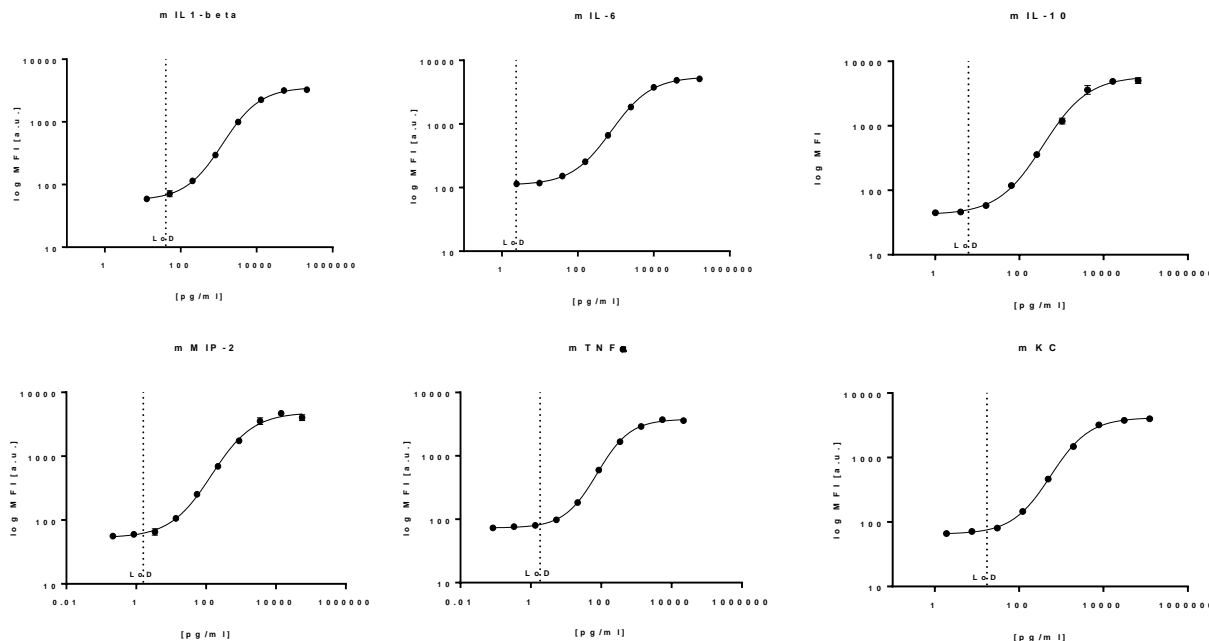


## IEBA Analyzer



| *Example data*

## Performance Characteristics



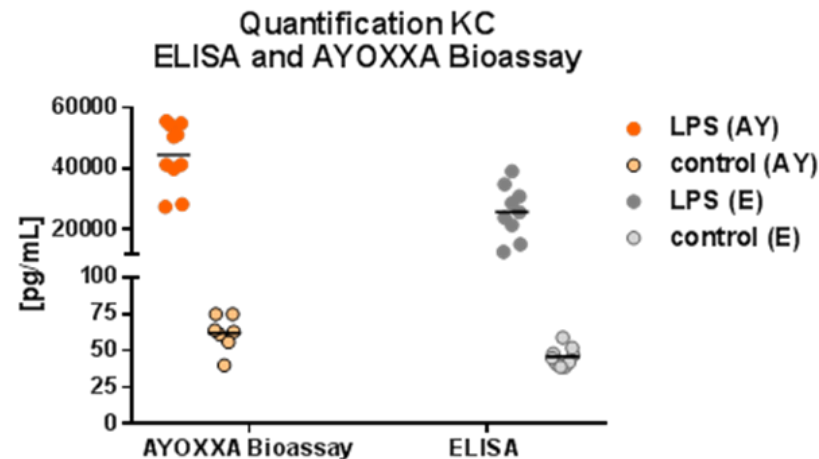
	IL-1 $\beta$	IL6	MIP-2	IL-10	TNF $\alpha$	KC
LoD [pg/ml]	41	3	1,6	6	1,8	17
LLoQ [pg/ml]	51	39	14	6	1,8	30
Dynamic Range [log]	4	4	3	3	3	4,5

# MOUSE CYTOKINE PANEL (EXAMPLE DATA)



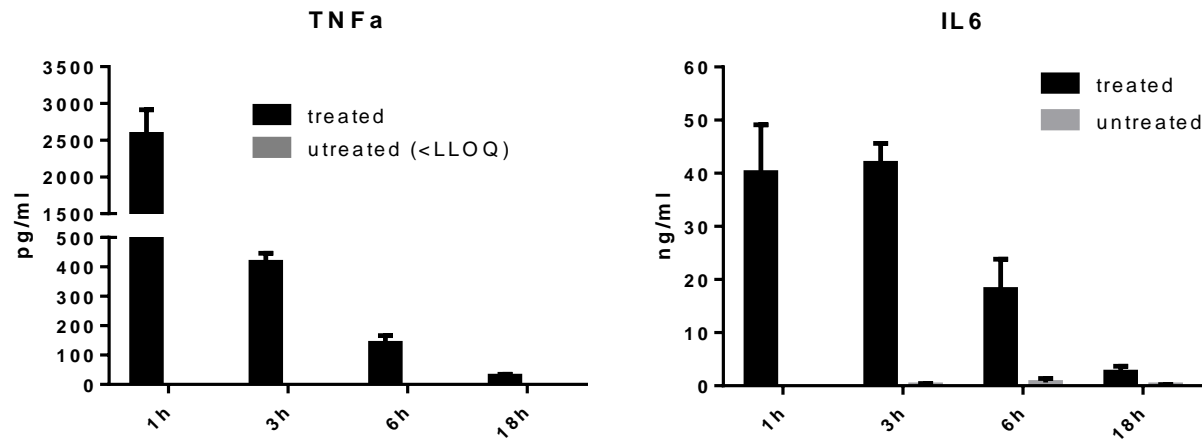
## Quantification of cytokines in serum (LPS-induced) - Comparison to ELISA

Sample ID	IL-1 $\beta$	IL-6	IL-10	MIP-2	KC	TNF $\alpha$	
1	279	42.205	468	5.558	55.567	35	induced
2	177	4.823	311	1.755	27.481	18	
3	172	8.496	262	2.288	28.265	27	
4	355	8.670	306	3.483	41.241	40	
5	274	10.210	306	2.876	50.480	26	
6	201	9.442	191	3.645	54.855	44	
7	381	14.312	451	3.296	41.244	44	
8	272	15.070	327	4.484	51.105	31	
9	186	12.724	259	2.486	39.860	26	
10	258	12.812	338	5.324	54.331	40	
11	<LoD	10,6	<LoD	5,2	40	<LoD	control
12	<LoD	6,7	<LoD	6,8	75	<LoD	
13	<LoD	<LoD	<LoD	6,3	63	<LoD	
14	<LoD	10,0	<LoD	6	75	<LoD	
15	n.a.	7,1	<LoD	5,4	61	<LoD	
16	<LoD	<LoD	<LoD	<LoD	<LoD	<LoD	
17	<LoD	<LoD	<LoD	5,8	<LoD	<LoD	
18	<LoD	<LoD	<LoD	5,7	56	<LoD	
19	<LoD	6,6	<LoD	6,8	64	<LoD	
20	<LoD	23	31	12,7	159	5	





- Detection of IL6 and TNF $\alpha$  in serum at different timepoints in single animals
- Blood sample volume per time point ~50 $\mu$ l
- 4 time points from each animal (n=3/group)



- Reduction of mouse numbers
- Minimization of inter-mouse variations due to sex/age/weight differences

INFRAFRONTIER-I3 project

WP5 : Technology development and implementation

Task 4: Biomarker Phenotyping/Evaluate multiplex assays for profiling and discovery

**Collaborators:** Antonio, Michael (GMC), Yann, Marie-France, Tanja, Mohammed, (ICS), Tertius (MRC), Jacqui (Sanger),

**AIM:**     *development of a multi-plex screening assay for mouse biomarkers of 5 different disease areas*

- 5 single plex assays developed
- Multiplex in optimization
- Q1 2015 – Cross Center Validation at GMC, ICS and MRC

- Innovative, patented **beads-on-a-chip technology** for **multiplex protein analysis** - “one drop of sample = thousands of single measurements”
- **High multiplexing capacity**
- **Very small sample volumes** of as low as 3  $\mu$ l grant access to new key applications and markets
- **Easy integration into existing laboratory workflow**
- **Compatibility to standard laboratory automation**
- **User friendly analysis suite with flexible data output formats**





LEVERAGING SUCCESS IN PROTEOMICS

**Thank you for your attention!**