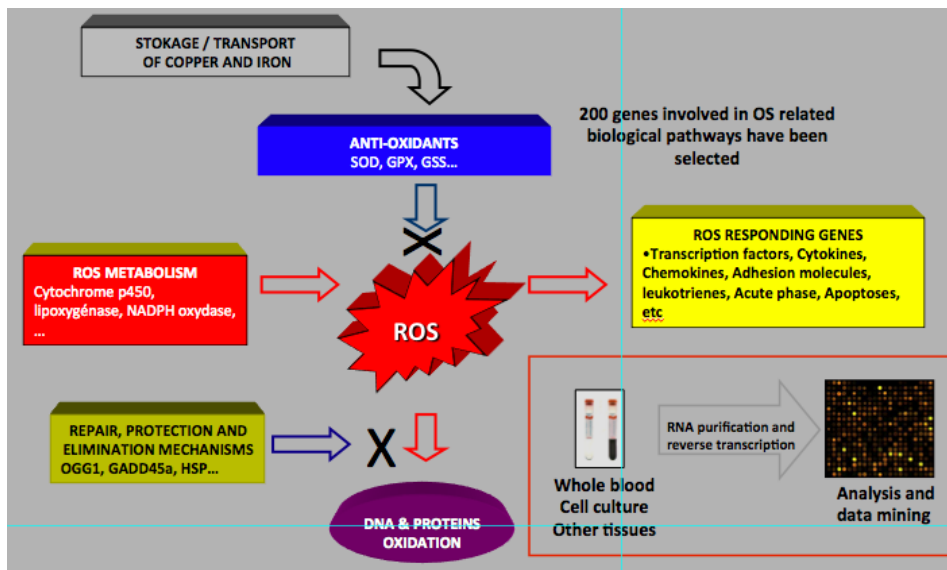


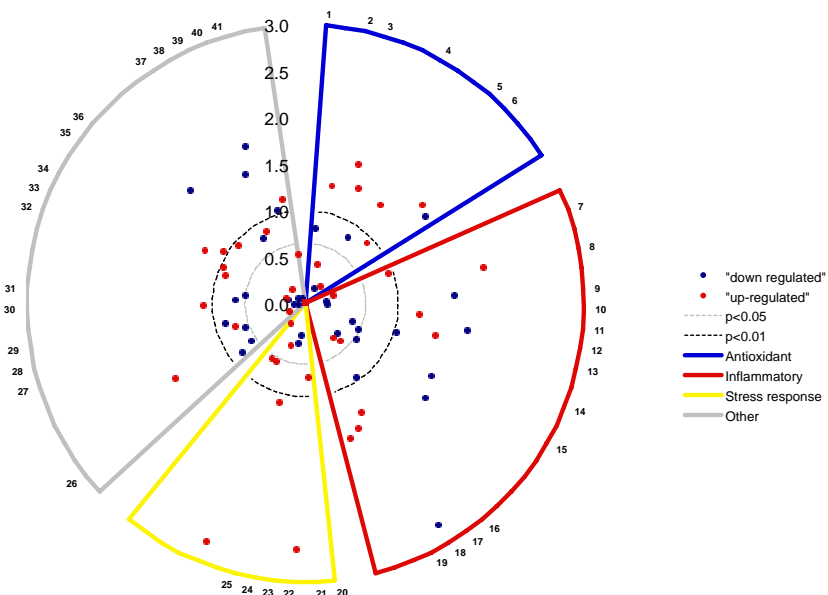
OxyGene™ is a DNA microarray for the accurate measurement of the expression of selected genes that are involved in oxidative stress and in inflammation



## Application

OxyGene™ can be used for the identification of new markers for the monitoring of drugs and nutraceuticals

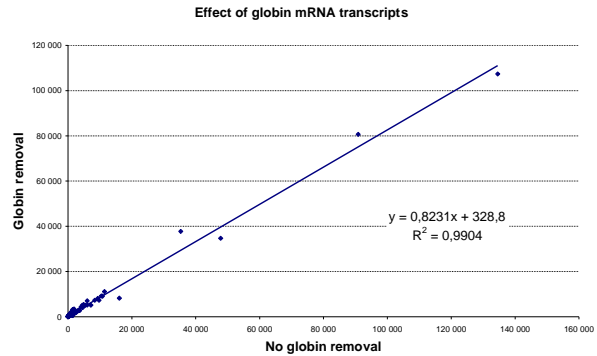
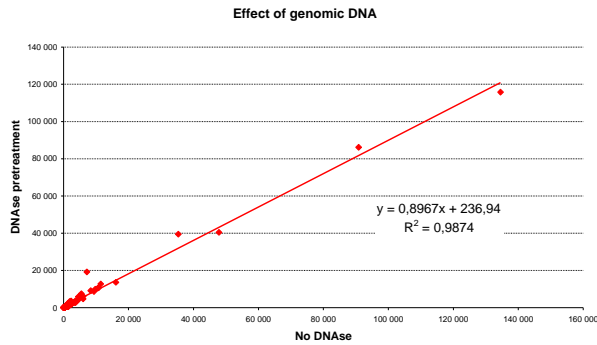
Example: the OxyGene™ expression profile after one-month intake of a polyphenolic compound by obese subjects. Comparison to placebo.



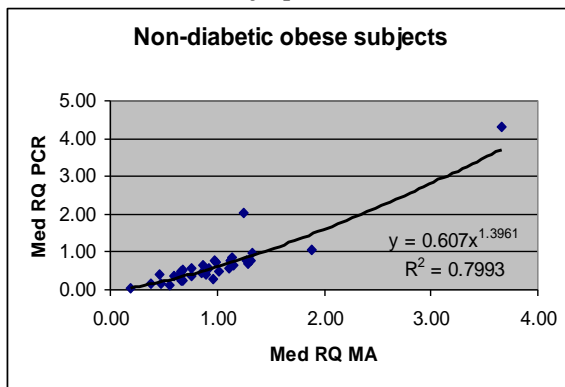
- Genes that are down-regulated (Fold change  $<-0.5$ ) are represented in blue and genes that are up-regulated (Fold change  $>0.5$ ) are represented in red.
- Values represent  $\log_{10}(1/P)$  where  $P$  is the correct  $P$  of the comparison between the mean fold changes of the polyphenol group and the mean fold changes of the placebo group.
- Genes are classified according to their role in relevant biological pathways

## Quality

- + High specificity
  - ➔ use of 60 bases capture oligos
  - ➔ no interference with genomic DNA
  - ➔ no interference with globin mRNA



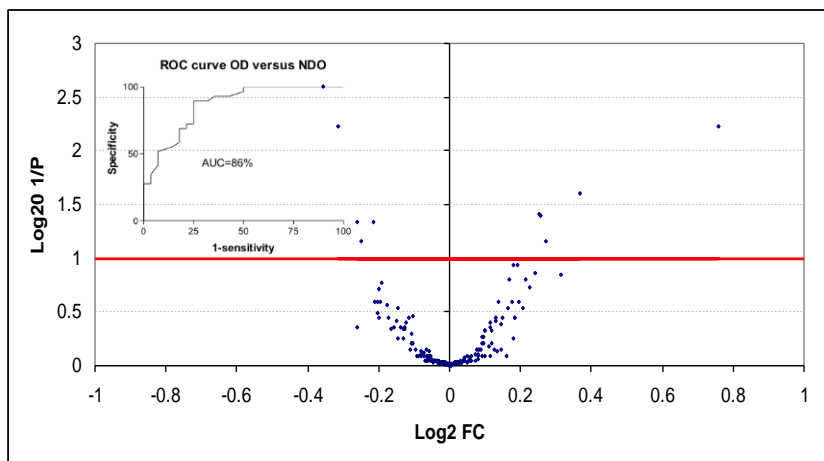
- + High reproducibility (intra & inter CVs < 7%)
- + Validated by quantitative RT-PCR



- Genes differentiating non-diabetic obese subjects (NDO) from healthy donors with OxyGene™ have been tested by qRPPCR (TaqMan® Custom Arrays from Applied Biosystems).
- Samples of 12 healthy donors and 10 NOD were tested.
- Correlations between relative expression of NDO/H obtained by  $\mu$ array and qRTPCR were calculated
- For qRTPCR,  $RQ = 2^{-\Delta\Delta CT}$
- For  $\mu$ array,  $RQ = 2^{\log 2FC}$

## Validation

- + Clinically validated in different human patho-physiological models (obesity, type-2 diabetes, hepatologic and cardiovascular models).



### Example:

Gene signature in diabetic obese subjects

- 11 genes differentiate diabetic patients among obese subjects
- This signature was used to calculate a score of diabetes (DIASCORE) using a specific algorithm
- The DIASCORE detects diabetic patients with good specificity and sensitivity (AUC 86%)