

Immune Clock



- The deviation of immunological age
- in atopic individuals

Prof. Nikolaos Papadopoulos

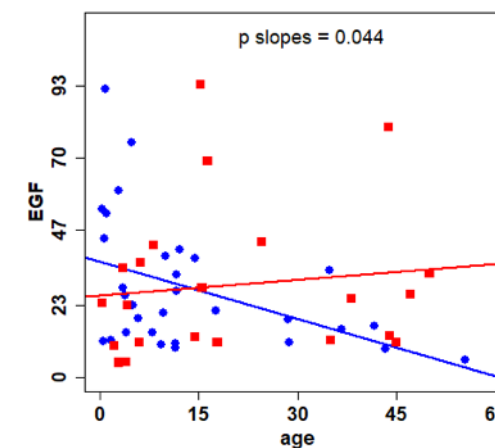
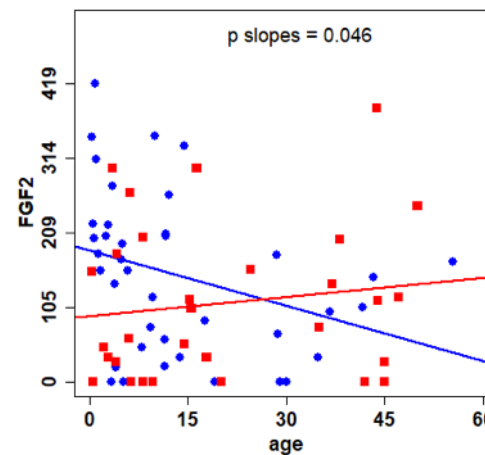
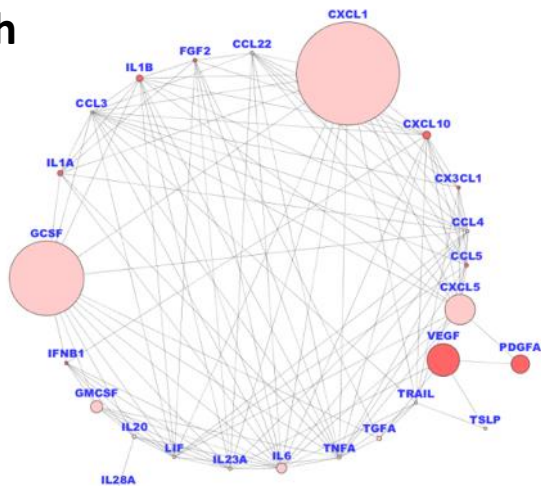


EU-FP7

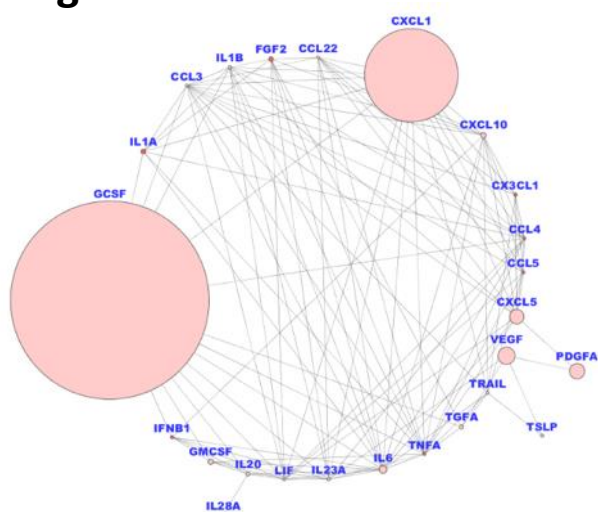
Differentiated immune maturation profile in allergy



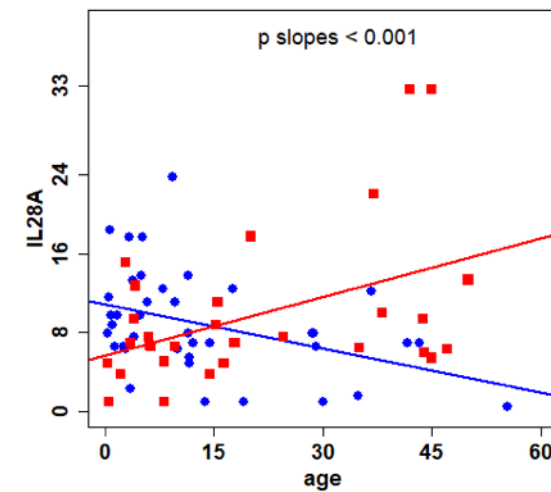
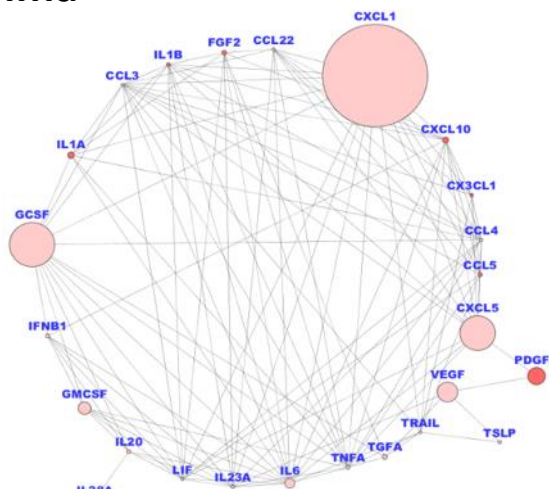
Health

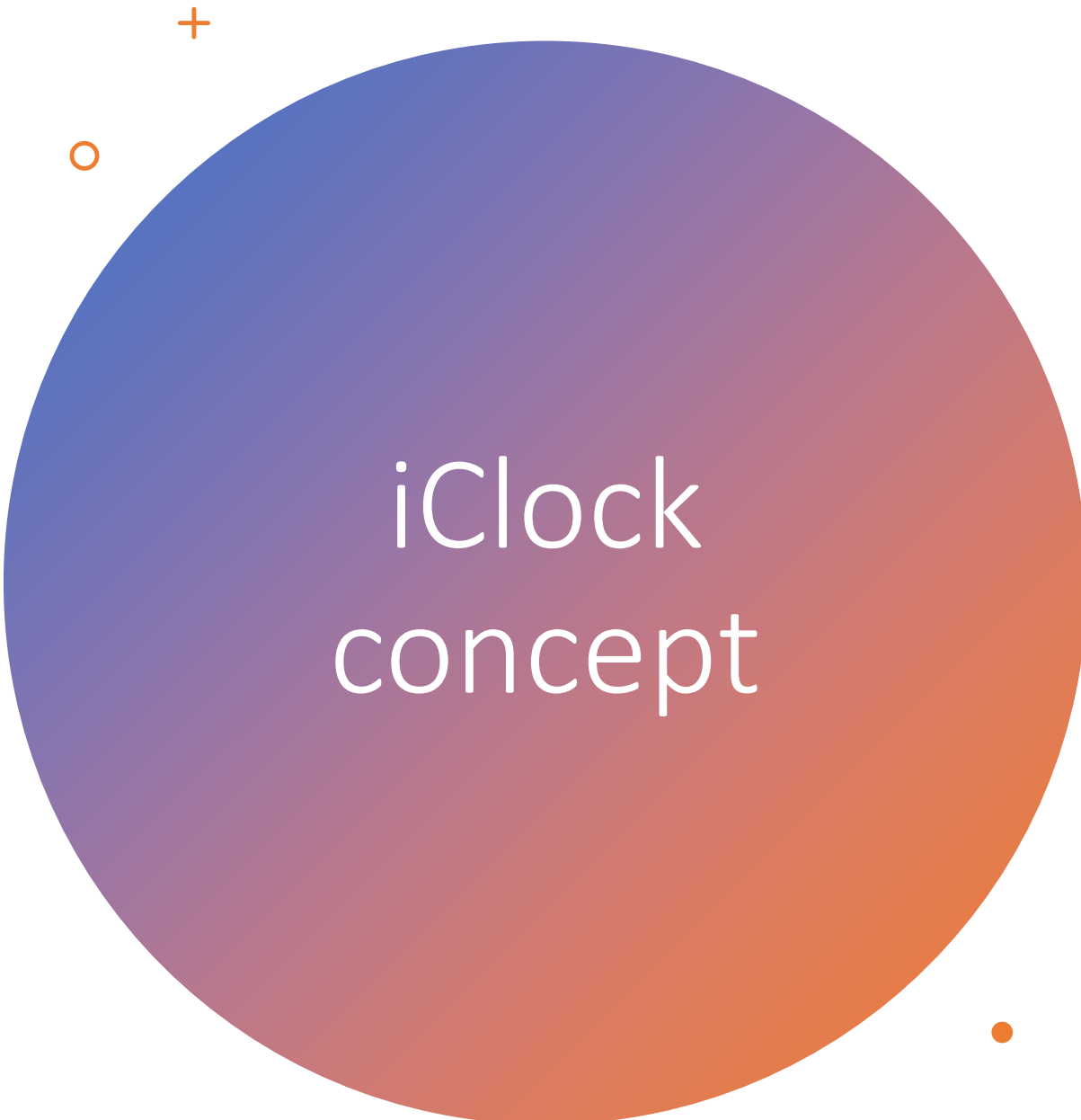


Allergic rhinitis



Asthma






iClock concept

Hypothesis

Age depended differences result from epigenetic changes

AIM

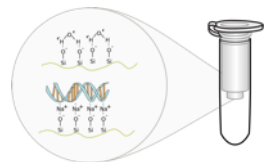
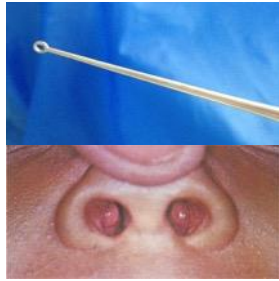
To evaluate GC content of different genomic regions of key molecules involved in innate immune maturation



Methods

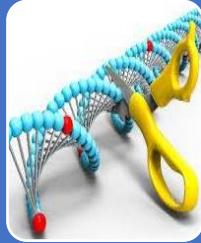
Sampling, culture, DNA

n=48



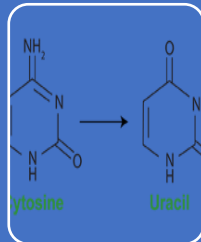
Reduced representation bisulfite sequencing (RRBS)

In silico analysis



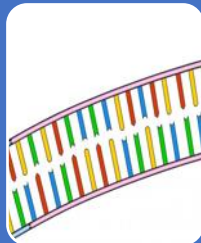
1

- Enzyme digestion – MspI digestion
- Adapter ligation and gap filling



2

- Size selection
- Bisulfite conversion



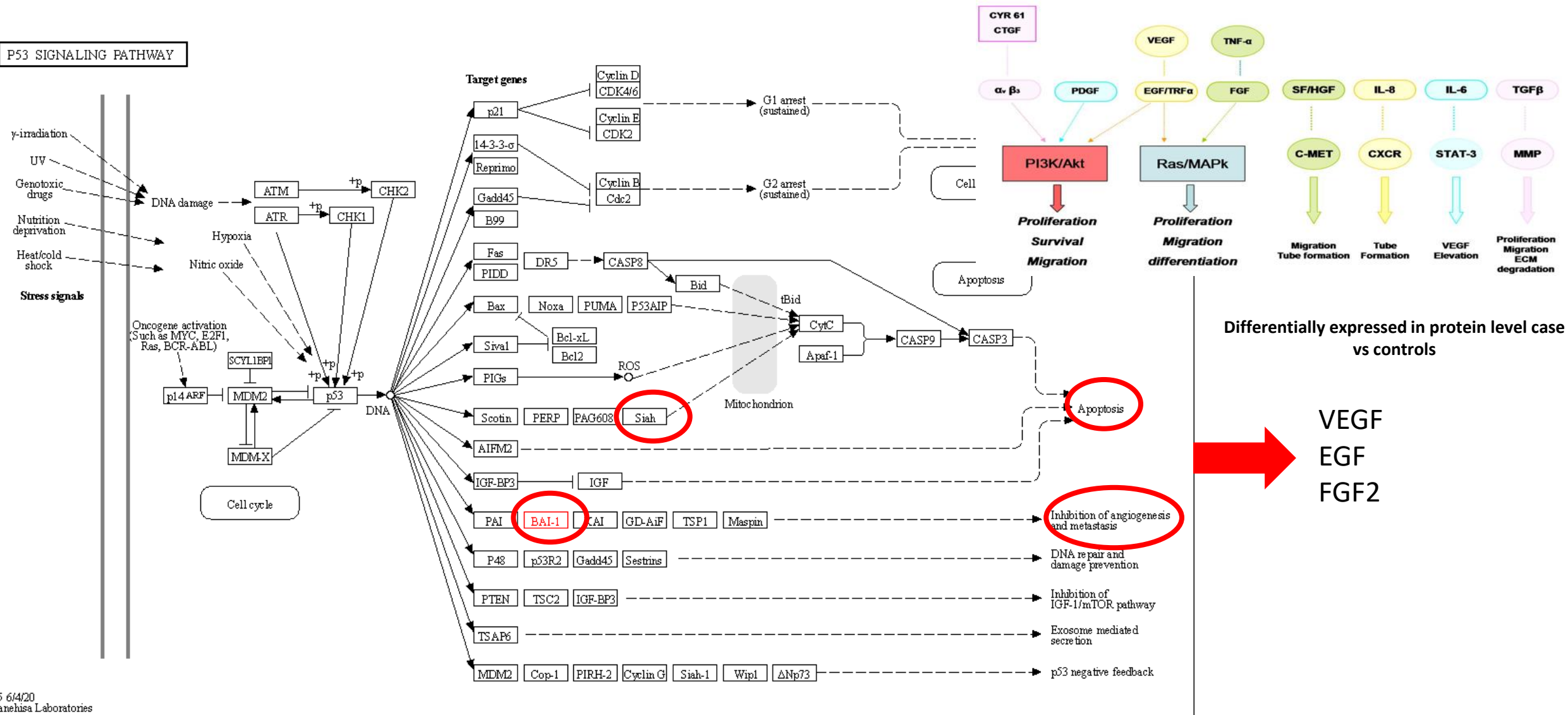
3

- PCR amplification
- NextSeq 500/550 High Output Kit v2.5
150 cycles (2x75cycles paired end)

chr1-36084303
chr10-79071575
chr22-38111202
chr11-76670391
chr1-99850154
chr3-48504478
chr3-194141215
chr8-142451196
chr20-39142679
chr11-12673959
chr7-29990132
chr11-44303858
chr4-49323362
chr15-20281171
chr10-30349206
chr9-129496633
chr1-205447811
chr3-94306007

Differentially methylated genes may regulate the Angiogenesis pathways – implicated in development of allergic diseases

P53 SIGNALING PATHWAY



Conclusions

- Differentially methylated genes regulating the angiogenesis pathways may be implicated in development of allergic diseases
- Age-dependent epigenetic changes seem to be associated to key factors of allergic disease dysfunctions

Team



Prof. Nikolaos G.
Papadopoulos



Stella Taka, MSc, PhD
Post doc
Biologist



Legaki Evangelia, MSc-PhD
Post doc
Biologist



Mageiros Leonardos, PhD
Post doc
Bioinformatician