UBIOPRED – taking on severe asthma

Marek Sanak
Jagiellonian University Krakow
Department of Internal Medicine
Unbiased Biomarkers for the Prediction of Respiratory Disease Outcomes

The project addresses the current inability of pre-clinical studies to predict clinical efficacy, which is a major bottleneck in drug development for severe asthma.

Examples:
- **Chromones** (chromolyn sodium, nedocromil) – introduced in early 1970s for allergic asthma, now alternate initial controller drug
  - Mild efficacy, reduces risk of hospitalization by 20% in children while steroids reduce by 50%  
  - perhaps 1 in 10 asthmatics is responder
- **Antileukotrienes** (montelukast, pranlukast) – introduced in late 1980s for moderate-to-severe asthma, moderate efficacy. Risk for exacerbation is 60% greater if used alone than with steroids  
  - perhaps 1 in 4 asthmatics is responder
How this will be achieved

- Clinical data from a large cohort
- Omics technology (genomics, transcriptomics, proteomics, lipidomics)
- Animal and laboratory models
- Human challenge models
- Systems biology
The consortium encompasses the representatives of all stakeholder groups by involving partners from academia (20), biopharma industry (EFPIA) (9), patients/care organisations (6), SMEs (3) and Multinational industry (1)

- **Duration**: 60 months, started 1 Oct 2009
- **Total costs**: 22,846,864 €
- **IMI contribution**: 8,977,151 €
- **EFPIA contribution**: 11,007,989 €
Coordinator: Academic Medical Centre, University of Amsterdam, Amsterdam, The Netherlands

EFPIA coordinator: Novartis Pharma AG

University of Southampton, Imperial College London, University of Manchester, Nottingham University Hospital (UK)
University of Catania, University of Rome Tor Vergata, Università Cattolica del Sacro Cuore (I)
Ctr. Nat. Recherche Scientifique, Université de la Méditerranée (F)
University Hospital, Umea, Karolinska Institutet, Haukeland University Hospital (S)
University Hospital, Copenhagen, Hvidore Hospital (DK)
Jagiellonian Univ. Medi.College (PL), University Hospital, Inselspital (CH)
Semmelweis University (HU), Fraunhofer Institute (D), Ghent University (B)
Netherlands Asthma Foundation, European Lung Foundation, Asthma UK, European. Fed. Of Allergy and Airways Diseases Patients' Associations, Lega Italiano Anti Fumo, International
Primary Care Respiratory Group, Philips Research Laboratories, Synairgen Research Ltd, Aerocrine AB, BioSci Consulting, Almirall, AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline, Pfizer, Roche, UCB

IMI @ Eurobiotech - 12 Oct 2011 - Krakow, Poland
Our aim

Lipidomics of induced sputum – samples of lower airways excretions

material: induced sputum collected from well defined asthmatic patients and controls (n=1000)

methods: high performance liquid chromatography – tandem mass spectrometry

measured analytes: 10 key lipid mediators and their metabolites reflecting cyclooxygenases and lipoxygenases inflammatory pathways
Our experience in the field

