



MUCHmoreontheMEETING

- "I found it very inspiring to visit the Boehringer-Ingelheim facility and to hear about the progress in all work packages. I was also very happy to receive feedback on our new plaque characterization method." *Magnus Cinthio, WP3, head of ultrasound arterial characterization group at Lund University, Sweden.*
- "It is always nice to meet the people you collaborate with, but sitting at this year's plenary meeting it really felt like we have turned a new page in SUMMIT's mission. We have generated an impressive amount of data and now that we start seeing results from everyone we experience the potentialities of approaching a problem from different angles. To this end, it is crucial to further optimize an organization and collaboration culture. If so, I think we will benefit from the synergistic effects of SUMMIT for a long time." *Emma Ahlqvist, PhD, WP1, Research Associate, at LUND University Diabetes Centre, Sweden.*
- "A considerable part of my work has been devoted to the analysis of genome wide association studies (GWAS) in diabetes complications. A first look at the results was presented at the plenary meeting and we expect that the data being generated within the project to be a valuable resource for several SUMMIT objectives, in particular identifying variants that influence the risk of developing diabetes and the predisposition to diabetes complications." *Claes Ladenvall, PhD, WP1, Biostatistician at LUND University Diabetes Centre, Sweden.*
- "The plenary meeting gave an excellent opportunity to meet with all collaborators and discuss the ongoing projects, but also to get new ideas and a better understand the entire SUMMIT consortium. It was very inspiring to see in the plenary meeting how the different projects and work packages start to overlap more and more." *Niina Sandholm, predoc, WP1, Folkhälsan Research Institute, Finland.*



NEWSandEVENTS

September 22<sup>nd</sup>, the joint satellite symposium of the IMI Diabetes Platform at 49<sup>th</sup> EASD Annual Meeting in Barcelona

The satellite symposium will precede the EASD Meeting on September 23-27, 2013 aiming at raising awareness for SUMMIT discoveries. Program available at: [www.imi-summit.eu/satellite-symposium](http://www.imi-summit.eu/satellite-symposium)

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Concept, design, and text: Dr. Klodiana Jani / Tel.: +49 (7351) 54-43435 / [klodiana.jani@boehringer-ingelheim.com](mailto:klodiana.jani@boehringer-ingelheim.com)  
 SUMMIT Project Manager: Dr. Markus Albertini / Tel.: +49 (7351) 54-97371 / [markus.albertini@boehringer-ingelheim.com](mailto:markus.albertini@boehringer-ingelheim.com)  
 Dr. Jacqueline Postma / Tel.: +46 (0) 40 391236 / [jacqueline.postma@med.lu.se](mailto:jacqueline.postma@med.lu.se)

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Eye on it!

Updating SUMMIT  
Key Achievements

1. Completes the largest ever **Genome Wide Association Studies (GWAS)** for a number of major diabetes complications.
2. Generates almost complete data for the first-ever exome sequencing study of Diabetic Nephropathy
3. Discovers exciting novel associations among diabetic CVD, lipids, interleukins and metabolites in case-control study on 2300 cohorts with incident CVD
4. Develops and ex-vivo validates a first version of an ultrasound/radiofrequency-based virtual histology for non-invasive assessment of plaque structure.
5. Generates four new mouse models and one rat strain, which replicate diabetic vascular complications



Dr. Mark launching the SUMMIT meeting

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From Biberach to Ulm, SUMMIT features new heights of achievements

With surroundings including the birthplace of Albert Einstein, the church with the tallest tower in the world and the traditional timber-framed buildings, over 100 members of SUMMIT descended on the historic cities of Biberach and Ulm for the 4th Plenary Meeting. One of a kind in SUMMIT, the meeting was hosted for the first time by a Pharma partner - Boehringer Ingelheim. The SUMMIT project, which will run until October 2014, involves 26 partners from 19 leading European universities and public research institutions along with 6 pharmaceutical companies and one small and medium-sized enterprise (SME). It provides a platform for integrated research in diabetes-associated diseases, with specific focus on (bio)marker discovery.

The two-day symposium, held February 27-28, gave a detailed overview of the work carried out the past year and an update of the most significant results

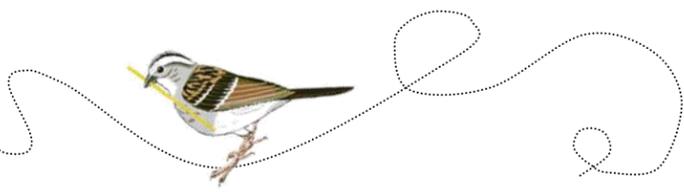
achieved so far, as depicted in more than 30 outstanding presentations by group leaders and junior scientists. The broad spectrum of the subjects reflected the multidisciplinary nature of the investigations conducted within work packages, spanning from genomics, proteomics, imaging technologies and animal models to bioinformatical analysis of the data.

In an address to the participants, Dr. Michael Mark, the coordinator of SUMMIT and the head of

Research at Boehringer Ingelheim, expressed its deepest gratitude to the partners, which by working together were able to deliver exciting findings. "This meeting marks the end of the Discovery Phase. The harvest time started, data are uploaded - but the discovery never ends. I am very optimistic that we have new data not yet seen."

**"The harvest time started, data are uploaded - but the discovery never ends. I am very optimistic that we have new data not yet seen."**

# The lesson SUMMIT learns from the sparrow of Ulm



Prof. McCarthy delivering his speech

As SUMMIT transitions from Discovery Phase to Validation and Translation Phases, it faces new challenges – integration of rapidly growing datasets and connection between the networking partners. Dr. Mark invited the participants to take full advantage of the two-day meeting to pool their experience and bring forward new ideas: “Today, we change the work package centric view into a more relevant view - the summification the view.”

He allegorized the SUMMIT change in strategy to the landmark of Ulm, the so-called sparrow of Ulm. Remarkably, by turning the straw in its beak lengthwise, the sparrow gave the craftsmen a clue to manoeuvre the long timber beams likewise, thus, allowing them to pass the wood through the gate and finally complete the spire. “The lesson from the sparrow teaches us that changing the views may help us to fit through the city gate, and eventually build the SUMMIT”, says Dr. Mark.

In the light of the summification view, Prof. Leif Groop, one of the initiators of SUMMIT and director of Lund’s University’s Diabetes Centre added: “Now it is really important that we focus not only on key achievements, but also on how to proceed. For the top leading markers, we create action groups and task forces. We set goals we want to see within 6 months; therefore we should all mobilize our expertise within the SUMMIT.”

Prof. Mark McCarthy from University of Oxford pinpointed, with skillful choice of words, that the current shift in Phases requires unification of expertise similarly to “the cake we need to bake. To identify biomarkers we need the ingredients and to mix them to finally create something that is the union of these parts.” And with that end in mind, he urged the experts to mainstream their work especially in: “Capturing the essence of discoveries, tackling the difficult tasks, bringing all our knowledge together and understanding where we can develop additional synergies. The mutual reinforcement of these undertakings in the right direction can be critically relevant in human medicine.”

**“Capturing the essence of discoveries, tackling the difficult tasks, bringing all our knowledge together and understanding where we can develop additional synergies”**

The cooperative and friendly atmosphere were carried on throughout the meeting and dinner event, which took place in one of the landmarks of the Biberach’s historic centre. Networking, intermingling, and enjoying were the main “dishes” of the meal. This event also empowered many younger scientists to finally meet with their highly appraised peers.

To learn more visit: [www.imi-summit.eu](http://www.imi-summit.eu)



A view of the Boehringer Ingelheim R&D campus in Biberach, where the 4<sup>th</sup> Plenary meeting of SUMMIT took place. Image is courtesy of Boehringer Ingelheim

# Drug-Quest: embarking on a journey of enlightenment

SUMMIT asked three distinguished executives at Boehringer Ingelheim to give an overview of Drug Discovery and Development Processes

The SUMMIT event kicked off with a training session targeting SUMMIT’s junior scientists. It aimed at providing insights into key processes in Pharmaceutical Industry. The Head of Research Germany at Boehringer Ingelheim, Prof. Gerd Schnorrenberg, launched the session with a compelling introductory presentation on Drug Discovery. “New targets are comprehensively characterized to explore efficacy and safety aspects and the relevance for the human disease. Screening, rational design and in silico approaches will yield molecular starting points for target interaction. Lead optimization will improve potency, safety and many additional parameters like



Prof. Schnorrenberg at the SUMMIT

of the Drug. The gained knowledge will then allow to synchronize the Drug Development and Regulatory processes with Clinical Trials.”

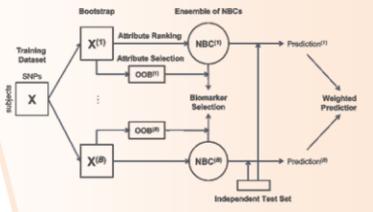
Dr. Cronlein, a Group Head of Clinical Operations at Boehringer Ingelheim, pinpointed the importance of Clinical Trials in defining the parameters of safety and efficacy of the drug as well as the reproducibility of findings. Scaling up the trials from pilot studies to larger-scale investigations ascertain the true effects of the new drug and the optimal interpretation of results.

Another highlight of the training session was the tour of the participants at the High-Throughput Compound Screening facilities and Welcome Center. The later one exhibits a series of photographs and documentary videos portraying nearly 130 years of Boehringer’s history on Drug Discovery, Development and Delivery.

To learn more visit: [www.boehringer-ingelheim.com](http://www.boehringer-ingelheim.com)



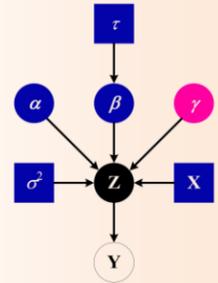
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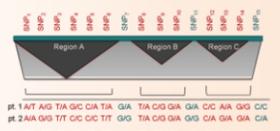
Bag of Naive Bayes (BoNB)

## Eye on it! Updating SUMMIT Key Achievements

7. Publishes 3 software tools for genetic marker discovery and prediction of diabetes complications.



Binary Outcome Stochastic Search (BOSS)



Hierarchical Naive Bayes (BoNB)

## Eye on it! Updating SUMMIT Key Achievements

6. Combinatorially enumerates 13 published captivating discoveries and 19 manuscripts in preparations

Bag of Naive Bayes: biomarker selection and classification from genome-wide SNP data

A Reconfigurable and Programmable FPGA-Based System for Nonstandard Ultrasound Methods

The recovery of platelet cyclooxygenase activity explains interindividual variability in responsiveness to low-dose aspirin in patients with and without diabetes

SNP in the genome-wide association study hotspot on chromosome 9p21 confers susceptibility to diabetic nephropathy

Effect of Size and Heterogeneity of Samples on Biomarker Discovery: Synthetic and Real Data Assessment

New Susceptibility Loci Associated with Kidney Disease in Type 1 Diabetes

Association Testing of Previously Reported Variants in a Large Case-Control Meta-analysis of Diabetic Nephropathy

Effects of Age, Diet, and Type 2 Diabetes on the Development and FDG Uptake of Atherosclerotic Plaques