Please provide an executive summary. The length of this part cannot exceed 1 page.

1. ***To gather and update the research community*** on the latest developments in Systems Biology.

FutureSysBio arranged ICSB2008 in Gothenburg with 1,050 delegates and in 2010 the 35th FEBS congress was held in Gothenburg where FutureSysBio organized the systems biology talks and was involved in the workshop "Practical Systems Biology". Moreover the project was represented at ICSB 2010 as well as 2011 where researchers from the partner groups presented their research orally as well as with posters. In Dec 2010 a summarising report from ICSB2010 was published by Partner 2 in the Biotechnology Journal.

2. ***To inform and guide funding organisations***, such as the European Commission services and the national funding bodies and foundations, of potential future directions of Systems Biology and hence possible funding priorities.

ICSB2008 featured "Arenas", where numerous EC-funded networks were introduced as well as a dedicated session on Systems Biology funding with participants from the EC and several national funding organisations. At ICSB 2011 FutureSysBio was presented with a poster at the "Science arena". Reports have been produced from both workshops as well as systems biology conferences. Both FutureSysBio partners participated in the preparation of the ISBE proposal for a European systems Biology infrastructure and community their experiences to funding organisations in the process.

3. ***To inform and guide pharmaceutical and bio-industries in Europe*** on developments and opportunities in Systems Biology and thereby enable well-informed corporate decisions.

ICSB2008 featured a session on the needs of the pharmaceutical and bio-industries with representatives from several companies. Moreover the topical conference "Gothenburg Life science Conference XI – Industrial Systems Biology" held in Gothenburg 2010 was dedicated to the impact of systems biology on industrial biotechnology, sustainable production of chemicals and production of biofuels.

A workshop has been held on what is needed to apply Systems Biology in the clinic. This was a successful workshop that provided future guidance for industries. In connection to the "Gothenburg Life science Conference XI – Industrial Systems Biology" the workshop "What is needed for employing Systems Biology in bioengineering" was held with representatives from Industry, academia and funding agencies.

4. ***To inform and guide higher education and education funders*** of challenges and opportunities in interdisciplinary education and training.

The workshop "Challenges in future education and training." was held in conjunction to ICSB 2011 in Mannheim. Leading European scientists and teachers were invited to hold a short presentation about their experiences in systems biology education as well as a round table discussion. It was decided to form a network of education performers in systems biology, an activity that will be persued within ISBE and the ERASysApp ERANet.

5. ***To inform the general public, policy makers, and media*** of opportunities, challenges and facts in Systems Biology.

In connection to the "Gothenburg Life science Conference XI – Industrial Systems Biology"a press conference was held, leading to an article in the Swedish newspaper Dagens nyheter Aug 29, 2010. The same newspaper also published an article about Partner 2 and systems biology, in June 2010. In conjunction with the preparation of the ERSysApp proposal both partners communicated with representatives of the region Västra Götaland, which resulted in their involvement in the ERANet and first steps to integrate systems biology in certain aspects of regional policy and development.

Please provide a summary description of the project context and the main objectives. The length of this part cannot exceed 4 pages.

The emerging field of Systems Biology is anticipated to have a major impact on the biosciences in the beginning of the 21st century. It is generally expected that the use of computational reconstructions of biological systems will result in a new level of understanding: the elucidation of the basic and presumably conserved "design" principles of bio-molecular systems. Thus Systems Biology will move biology from a phenomenological to a predictive science. The ability to predict the systems behaviour should allow to accurately foresee the outcome of therapeutic interventions with individual patients or to optimise industrial bioprocesses precisely. Therefore, the results of Systems Biology are expected to have major impact on both medicine and industrial production. Developing the research field and ensuring exploitation of its results therefore is of major social and economic interest for the European Union.

There are a number of challenges that possibly *restrict progress in Systems Biology* such that it cannot fulfil its promises. FutureSysBio aims at contributing to overcoming those constraints. Specifically, the objectives are:

1. *To gather and update the research community* on the latest developments in Systems Biology. This will be achieved by organising the International Conference on Systems Biology ICSB in Europe in the years 2008 (Gothenburg) and the 35th FEBS congress, FEBS2010 (Gothenburg) as well as involvement in ICSB 2010 and 2011. *Expected results*: Two large international conferences (about 1,000 delegates each) with delegates representing all stakeholders and specific activities ensuring interaction between academic and industrial researchers, funding organisations, the public, the media, and other special-interest organisations. These conferences are expected to provide strong stimulation for the research field in Europe.

2. *To inform and guide funding organisations*, such as the European Commission services and the national funding bodies and foundations, of potential future directions of Systems Biology and hence possible funding priorities. This will be achieved via the ICSB conferences as well as a series of high-level expert workshops that will deliver reports on well-defined topics. These activities will build on, among others, a recent ESF Forward Look on Systems Biology and be coordinated with those activities ongoing in the ERASysBio project. *Expected results*: Advice and guidance for funding organisations based on discussions of high-level representatives of the research community and stakeholders.

3. *To inform and guide pharmaceutical and bio-industries in Europe* on developments and opportunities in Systems Biology and thereby enable well-informed corporate decisions. This will be achieved via dedicated activities at ICSBs, high-level expert workshops, and dedicated topical conferences. *Expected results*: Interaction with European pharma- and bio-industries via ICSBs, workshops and dedicated topical conferences to inform those industries about opportunities in Systems Biology.

4. *To inform and guide higher education and education funders* of challenges and opportunities in interdisciplinary education and training. This will be achieved via dedicated activities at ICSBs as well as the high-level expert workshops. *Expected results*: FutureSysBio envisages promoting interdisciplinary education and training such that the relevant organisations may educate future generation biologists and medical scientists to be trained in more than one of the traditional disciplines.

5. *To inform the general public, policy makers, and media* of opportunities, challenges and facts in Systems Biology. This will be achieved by dedicated activities at ICSBs, through the project website, and open activities such as hearings and panel discussions. *Expected results*: Interaction of leading Systems Biology scientists with the general public, etc. to objectively inform on opportunities, challenges and facts in Systems Biology.

Please provide a description of the main S & T results/foregrounds. The length of this part cannot exceed 25 pages.

1.*To gather and update the research community on the latest developments in Systems Biology.*

FutureSysBio arranged ICSB2008 in Gothenburg with 1,050 delegates. Partner 1 chaired the organising committee and Partner 2 participated in the committee. Partner 1 had the main responsibility for the scientific programme of the meeting. The programme constitutes D1. Feedback from delegates testifies that the programme was of outstanding quality, highlighting the potential of integrating experimentation and modelling to address pertinent research questions in biology and medicine. Also the balance between different sub-disciplines within the programme was appreciated.

Partner 1 also arranged the Arena programme at ICSB2008 (D2). Arenas were defined as a small stand with a poster and other promotion material representing local centres, EC-funded projects, other types of consortia or non-commercial activities. This Arena activity was a major success and has been repeated at ICSB2011 in Heidelberg. Some 40 Arenas were presented and have greatly contributed to interaction and integration of different initiatives in the field. (Conference programme outline is attached to the report)

Partner 1 chaired the organising committee for the 2010 FEBS Congress in Göteborg and partner 2 participated in the committee. Partner 1 had the main responsibility for the scientific programme (D4) with more than 120 invited speakers, including four Nobel laureates. The programme had significant Systems Biology components in many of the sessions and a workshop on Practical Systems Biology . The Congress was attended by 1,600 delegates and greatly contributed to spreading the Systems Biology approach among biochemists and molecular biologists. (Conference programme outline is attached to the report)

FutureSysBio was represented at ICSB 2010 as well as 2011 where researchers from the partner groups presented their research orally as well as with posters. In Dec 2010 a summarising report from ICSB2010 was published by Partner 2 in the Biotechnology Journal (Biotechnol. J. 2010, 5, 1257–1260 DOI 10.1002/biot.201000390). (Conference programme outlines are attached to the report)

2. *To inform and guide funding organisations, such as the European Commission services and the national funding bodies and foundations, of potential future directions of Systems Biology and hence possible funding priorities.*

FutureSysBio was involved in organizing a very successful International Conference on Systems Biology 2008, with about 2000 participants. There was a very high level of the scientific program with a range of keynote speakers from Europe, USA and Asia. The conference was organized with a plenary session in the morning where there were 4 general lectures that introduced four different topics. The plenary session was then followed by four parallel sessions, so-called dedicated sessions where there were two invited speakers and 6 speakers selected from poster abstracts. Poster session/ exhibition/arenas were combined with lunch, and in the early afternoon there was organized specific workshops. Later in the afternoon there was again a plenary session with fours speakers. Among the workshops there was organized one on Funding needs and opportunities. At the workshop there was presentations from funding organizations in UK, Germany, Sweden and Switzerland as well

as from the EU and European Science Foundation. The workshop gave a very clear demonstration of the increasing focus at funding bodies on systems biology. The workshop involved a panel discussion. (Conference programme outline is attached to the report)

A workshop on the topic "What is needed for systems biology to enter the clinic" was organized in November 2008 in Gothenburg. The workshop had about 20 participants from universities, hospitals and companies. About half of the participants were young researchers that were selected based on application (more than 60 applicants came in). At the workshop there was organized different discussions in groups on how systems biology can contribute better to advance the medical health care system in Europe, and some of the barriers were discussed. The outcomes of the discussions in the workshop were summarized in discussions with the Swedish funding agency Vetenskapsrådet. This has resulted in opening of a call for establishing a Swedish infrastructure on Systems Biology. This is to be interacting with Infrastructure Systems Biology Europe (ISBE), which has been funded in an initial phase. (Workshop programme is attached to the report)

A four hour workshop was held in connection with the conference "Industrial Systems Biology: Sustainable production of fuels and chemicals" held at Chalmers August 18-20, 2010. Focus of the workshop was twofold: 1) how will systems biology impact industrial biotechnology in the future; and 2) what is the Swedish perspective of industrial biotechnology. Sweden is a country that is characterized by having a large production industry, and of relevance for industrial biotechnology there are large industries in the following sectors: chemicals, forestry, pulp and paper and food. Besides this Sweden has access to fairly cheap hydro-electricity that can drive the utilization of Sweden's large biomass resources.

Among the topics discussed were:

- What are the current barriers for advancing the use of industrial biotechnology globally and how can systems biology assist in passing these barriers?
- Biofuels versus bio-based commodity chemicals: What will lead the development?
- What are the best exemplar cases of industrial biotechnology success stories and what were the key technologies that ensured break-through?
- How can Sweden position itself in the field of industrial biotechnology?

Moderator for the roundtable discussion was Jens Nielsen. At the workshop there were two representatives from Swedish funding agencies (VINNOVA and Innovationsbron). Based on the discussions VINNOVA has initiated internal strategy discussions on how to advance industrial biotechnology both in a Swedish perspective but also in a European perspective. In connection with this activity there has also been pushed for establishing an ERA-NET in the field of systems biology applied to industrial biotechnology (with two Swedish funding agencies being partner; Vetenskapsrådet and Västre Götalands Region).

The workshop on "Defining the needs for developing modeling strategies" was held in January 2011. The workshop was very successful with about 20 participants from all over Europe. At the workshop there was set up definitions for how modeling can contribute to advance the field of biology, biotechnology and human health. Based on the discussions a paper has been written up and it is planned to submit this for publication in the near future. The publication will also be send to different funding agencies in Europe – via ISBE. (Workshop programme is attached to the report)

The workshop "Protein-Protein Interaction Annotation Jamboree" was held in Gothenburg in September 2009. The workshop had 20 participants from several internationally leading

research groups. At the workshop it was discussed how there can be a coordinated effort towards data generation. The discussions resulted in the establishment of a new initiative on coordinating data assembly and building network structures for different pathways in yeast with the objective to demonstrate how coordination of research activities can result in reaching ambitious systems biology objectives. Moreover the discussions in the workshop were integrated with the results from Task 2 and summarized in discussions with the Swedish funding agency Vetenskapsrådet. This has resulted in opening of a call for establishing a Swedish infrastructure on Systems Biology. This is to be interacting with Infrastructure Systems Biology Europe (ISBE), which has been funded in an initial phase. (Workshop programme is attached to the report)

Several smaller workshops and meetings on establishing research infrastructures in systems biology have been held, in particular in connection with establishing the proposal for ISBE. Compared with experimental sciences and bioinformatics it is more difficult to define clearly the structure of infrastructures for systems biology, as this discipline generally involves approaches that are directed to a specific research problem. However, through these meetings it is has become possible to identify areas of systems biology that have matured sufficiently to allow for building geographically distributed infrastructure facilities in the form of model-databases and computational services. It is believed that this will result in further consolidation and focus of the research field, and further allow establishing platforms that will allow a wider dissemination of systems biology in research. These discussions have, as mentioned, above taken place in close interaction with funding agencies, and it is believed that ISBE will be a major vehicle for driving this onwards in the future.

Moreover due to the big interest of industrial biotechnology and a European focus on industrial aspects it was agreed with the Project Officer to change the task 6 workshop from “Research infrastructures and networks” to “Systems Biology for Industrial Biotechnology in Europe”. The workshop combined presentations from academia and industry, and in connection with each lecture there was extensive discussion. Following the workshop there were a round off discussion on future directions. Overall the workshop demonstrated that systems biology tools and techniques are being integrated into the research programs of many leading European companies, but that there still is a need for further bridging between academia and industry. In connection with this the EU Coordination Action Systems Biology as a Driver for Industrial Biotechnology (SYSINBIO) was mentioned as an important vehicle as this allowed for such bridging. (Workshop programme is attached to the report)

A workshop on “Challenges in future education and training” was held during the ICSB2011 conference in Mannheim in August, 2011. Leading European scientists and teachers were invited to hold a short presentation about their experiences in systems biology education as well as a round table discussion. There was also held a workshop on “Education in interdisciplinary biology” at ICSB2008 in Gothenburg, and at this workshop there was discussed different approaches to education in the field of systems biology. No report has been sent on these activities to funding agencies, but recommendations were drafted for how to build interdisciplinary education programs. (Workshop programme is attached to the report)

There was active involvement in organizing ICSB2010 as well as 2011. A conference report from the 2010 meeting has been published. (Conference programme outlines are attached to the report)

3. *To inform and guide pharmaceutical and bio-industries in Europe on developments and opportunities in Systems Biology and thereby enable well-informed corporate decisions.*

FutureSysBio was involved in organizing a very successful International Conference on Systems Biology 2008, with about 2000 participants. There was a very high level of the scientific program with a range of keynote speakers from Europe, USA and Asia. The conference was organized with a plenary session in the morning where there were 4 general lectures that introduced four different topics. The plenary session was then followed by four parallel sessions, so-called dedicated sessions where there were two invited speakers and 6 speakers selected from poster abstracts. Poster session/ exhibition/arenas were combined with lunch, and in the early afternoon there was organized specific workshops. Later in the afternoon there was again a plenary session with fours speakers. Among the workshops there was organized one on Industry needs in systems biology. At the workshop there were excellent presentations from both big-pharma and small biotech companies. The workshop gave a very clear demonstration of how systems biology can drive drug development and clinical investigations onwards. The workshop involved a panel discussion. (Conference programme outline is attached to the report)

A workshop on the topic “What is needed for systems biology to enter the clinic” was organized in November 2008 in Gothenburg. The workshop had about 20 participants from universities, hospitals and companies. About half of the participants were young researchers that were selected based on application (more than 60 applicants came in). At the workshop there were organized different discussions in groups on how systems biology can contribute better to advance the medical health care system in Europe, and some of the barriers were discussed. The outcomes of the discussions have been summarized in a short commentary on Translational and Systems Medicine. At the workshop there were representatives from industry that presented their perspectives on how systems biology can contribute to the field. The results of the workshop have further been used by many of the academic participants to engage with discussions with local companies on establishing collaborative projects. (Workshop programme is attached to the report)

The workshop on “Defining the needs for developing modeling strategies” was held in January 2011. The workshop was very successful with about 20 participants from all over Europe. At the workshop there was set up definitions for how modeling can contribute to advance the field of biology, biotechnology and human health. Through discussions with industry it is quite clear that stoichiometric based models have found wider use than detailed kinetic models, and there is therefore increasing focus on how to provide solid infrastructures for this kind of modeling in the future. Through interaction with the EU-project Systems Biology as a Driver for Industrial Biotechnology (SYSINBIO), that had a heavy industrial representation it has further been possible to get solid feed-backs from industry on their views on systems biology and this was integrated at the workshop. (Workshop programme is attached to the report)

A workshop on “Protein-Protein Interaction Annotation Jamboree” was held in Gothenburg in September 2009. The workshop had 20 participants from several internationally leading research groups. At the workshop it was discussed how there can be a coordinated effort towards data generation. The discussions resulted in the establishment of a new initiative on coordinating data assembly and building network structures for different pathways in yeast with the objective to demonstrate how coordination of research activities can result in reaching ambitious systems biology objectives. This workshop had little relevance for

industry at this stage, but the infrastructure that may be generated as an outcome of the discussions at the workshop may be attractive for industry. (Workshop programme is attached to the report)

Several smaller workshops and meetings on establishing research infrastructures in systems biology have been held, in particular in connection with establishing the proposal for ISBE. Compared with experimental sciences and bioinformatics it is more difficult to define clearly the structure of infrastructures for systems biology, as this discipline generally involves approaches that are directed to a specific research problem. However, through these meetings it is has become possible to identify areas of systems biology that have matured sufficiently to allow for building geographically distributed infrastructure facilities in the form of model-databases and computational services. It is believed that this will result in further consolidation and focus of the research field, and further allow establishing platforms that will allow a wider dissemination of systems biology in research. As mentioned in WP2 these discussions have taken place in close interaction with funding agencies, but through our industrial network we have also managed to ensure input from this segment on how systems biology can advance translational research, both in the pharmaceutical and industrial biotechnology segment.

Moreover due to the big interest of industrial biotechnology and a European focus on industrial aspects it was agreed with the Project Officer to change the task 5 workshop from "Research infrastructures and networks" to "Systems Biology for Industrial Biotechnology in Europe". The workshop combined presentations from academia and industry, and in connection with each lecture there was extensive discussion. Following the workshop there were a round off discussion on future directions. Overall the workshop demonstrated that systems biology tools and techniques are being integrated into the research programs of many leading European companies, but that there still is a need for further bridging between academia and industry. In connection with this the EU Coordination Action Systems Biology as a Driver for Industrial Biotechnology (SYSINBIO) was mentioned as an important vehicle as this allowed for such bridging. (Workshop programme is attached to the report)

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A four hour workshop was held in connection with the conference "Industrial Systems Biology: Sustainable production of fuels and chemicals" held at Chalmers August 18-20, 2010. Focus of the workshop was twofold: 1) how will systems biology impact industrial biotechnology in the future; and 2) what is the Swedish perspective of industrial biotechnology. Sweden is a country that is characterized by having a large production industry, and of relevance for industrial biotechnology there are large industries in the following sectors: chemicals, forestry, pulp and paper and food. Besides this Sweden has

access to fairly cheap hydro-electricity that can drive the utilization of Sweden's large biomass resources.

Among the topics discussed were:

- What are the current barriers for advancing the use of industrial biotechnology globally and how can systems biology assist in passing these barriers?
- Biofuels versus bio-based commodity chemicals: What will lead the development?
- What are the best exemplar cases of industrial biotechnology success stories and what were the key technologies that ensured break-through?
- How can Sweden position itself in the field of industrial biotechnology?

Moderator for the roundtable discussion was Jens Nielsen. At the workshop there was heavy industrial representation.

There was active involvement in organizing both ICSB2010, where there was organised a specific session on impact of systems biology on biotechnology, as well as ICSB2011 where FutureSysBio was presented with a poster on the Science Arena where industry was also present

There was organized a conference on Chemical Biology in Gothenburg in August 2009. The conference had about 100 participants and involved presentation from several companies. The topic is highly relevant for the identification of drug targets, and there was several discussions on how systems biology can assist in advancing our understanding of chemical interactions with proteins. (Conference programme is attached to the report)

A 2 day conference "Industrial Systems Biology: Sustainable production of fuels and chemicals" was held at Chalmers University of Technology, Gothenburg, Sweden August 18-20, 2010 (the conference was organized as one of the conferences in the Gothenburg Life Science Conference series). In connection with the conference there was also organized a dedicated student workshop on August 17 (3 hours) where one speaker from academia (Professor Gregory Stephanopoulos, MIT, USA) and one speaker from industry (Dr. Alan Berry, Novozymes, USA/Denmark) presented about job prospects and industrial demand for future students.

At the conference there were 20 oral presentations and 40 poster presentations. There were more than 170 participants at the conference. A detailed report from the conference has been published in Biotechnology Journal (Biotechnol. J. 2011, 6, 259–261 DOI 10.1002/biot.201000346). Furthermore, based on oral presentations several papers were published in a special issue of Biotechnology Journal entitled "Systems biology for industrial applications". The editorial provides perspectives based on conclusions of the conference. There was very heavy industrial representation at the conference, both in terms of speakers and participants. (Conference programme is attached to the report)

4. *To inform and guide higher education and education funders of challenges and opportunities in interdisciplinary education and training.*

FutureSysBio was involved in organizing ICSB2008 and the programme of the session on education at ICSB2008 was as follows

Education in interdisciplinary biology		
Chairpersons: Anders Blomberg (Gothenburg) and Hans Westerhoff (Manchester/Amsterdam)		
Hans Westerhoff	University of Manchester, UK	Doctoral Training: twinning the challenges of inter- and transdisciplinarity
David Botstein	Princeton University, USA	Undergraduate Science Curriculum for the 21st Century
Olle Nerman	Chalmers University of Technology, Gothenburg, Sweden	Experiences from interdisciplinary master programmes in bioinformatics and systems biology in Gothenburg
Anders Blomberg	University of Gothenburg, Sweden	Experience from pair-student projects - graduate multidisciplinary training within the National Research School in Genomics and Bioinformatics
Stefan Hohmann	University of Gothenburg, Sweden	Developing the International Course for Yeast Systems Biology
Panel discussion and questions from the audience		

The session featured a number of different approaches to teaching interdisciplinary and systems biology. All stressed, however, the importance of training in more than one discipline, i.e. biology plus X.

The workshop "Challenges in future education and training" (D4.3) was held in conjunction to ICSB 2011 in Mannheim. Leading European scientists and teachers held short presentations about their experiences in systems biology education. The presentations were followed by a round table discussion on various aspects of Systems Biology education. The following were the major conclusions from these discussions:

- Interdisciplinary education in biology and medicine encompassing principles of physics, chemistry and mathematics/engineering is absolutely essential for developing Systems Biology and for promoting the competiveness of the European research base.
- Such interdisciplinary education should be based on a foundation within one discipline. In other words, starting interdisciplinary education from day 1 at bachelor level is regarded too challenging for the large majority of students.
- The appropriate level to enter interdisciplinary education is at master's and PhD training level.
- A network of European Systems Biology education programmes is highly recommended to ensure exchange of experience, teachers and students.

It was decided to form such a network of education performers in systems biology, an activity that will be pursued within the ISBE ESFRI project and the ERASysApp ERANet. (Workshop programme is attached to the report)

5. *To inform the general public, policy makers, and media of opportunities, challenges and facts in Systems Biology.*

In conjunction with the ICSB2008 conference FutureSysBio issued press releases to inform the media. Media coverage of the event was, however, limited.

In connection to the "Gothenburg Life science Conference XI – Industrial Systems Biology"a press conference was held. This media event resulted in an article in the biggest Swedish daily newspaper, *Dagens Nyheter*, on Aug 29, 2010. The same newspaper also published an article about Partner 2 and systems biology as a research area on June 27 2010. These articles had very high visibility within Sweden and raised public interest for the topic. It was followed by several additional articles in newspapers and science- as well as biotechnology-related magazines.

In conjunction with the preparation of the ERSysApp proposal both Partners communicated with representatives of the region Västra Götaland, which resulted in their involvement in the ERANet. This can be seen as a first step for raising the interest for the potential for Systems Biology in regional politics. This was followed by further discussions to integrate systems biology in certain aspects of regional policy and development. In the long run we envisage wider activities within the region and potentially to connect different regions in Europe for exploiting Systems Biology.

In conjunctions with the preparation of the ISBE ESFRI proposal Partner 1 communicated with different European funders on the potential for developing Systems Biology infrastructure. Both Partners communicated with the Swedish Research Council and the Wallenberg Foundation as well as the Swedish genomics infrastructure SciLifeLab on developing access to competence in Systems Biology.

Please provide a description of the potential impact (including the socio-economic impact and the wider societal implications of the project so far) and the main dissemination activities and the exploitation of results. The length of this part cannot exceed 10 pages.

FutureSysBio arranged ICSB2008 in Gothenburg with 1,050 delegates and in 2010 the 35th FEBS congress was held in Gothenburg where FutureSysBio organized the systems biology talks and was involved in the workshop "Practical Systems Biology". Moreover the project was represented at ICSB 2010 as well as 2011 where researchers from the partner groups presented their research orally as well as with posters. In Dec 2010 a summarising report from ICSB2010 was published by Partner 2 in the Biotechnology Journal. These events have strongly contributed to community building among researchers in Europe, spreading of excellence in research, wider attention to the Systems Biology approach and the communication between different state holders. These aspects will have long-lasting effects on the European research landscape in the field.

ICSB2008 featured "Arenas", where numerous EC-funded networks were introduced as well as a dedicated session on Systems Biology funding with participants from the EC and several national funding organisations. At ICSB 2011 FutureSysBio was presented with a poster at the "Science arena". Reports have been produced from both workshops as well as systems biology conferences. Both FutureSysBio partners participated in the preparation of the ISBE proposal for a European Systems Biology infrastructure and communicated their experiences to funding organisations in the process. ISBE will have a long-lasting effect on structuring Systems Biology research and providing access to data-generating facilities and competence in modelling and simulation. In this context, a proposal for a Swedish Systems Biology infrastructure was submitted to the Swedish research Council.

ICSB2008 featured a session on the needs of the pharmaceutical and bio-industries with representatives from several companies. Moreover the topical conference “Gothenburg Life science Conference XI – Industrial Systems Biology” held in Gothenburg 2010 was dedicated to the impact of systems biology on industrial biotechnology, sustainable production of chemicals and production of biofuels. A workshop has been held on what is needed to apply Systems Biology in the clinic. This was a successful workshop that provided future guidance for industries. In connection to the “Gothenburg Life science Conference XI – Industrial Systems Biology” the workshop “What is needed for employing Systems Biology in bioengineering” was held with representatives from Industry, academia and funding agencies. These activities have strengthened the interest within the industries and provided them with contacts and entry points for access to competence in the field. This is expected to have long-lasting effects for the development of industrial applications of Systems Biology.

The workshop “Challenges in future education and training.” was held in conjunction to ICSB 2011 in Mannheim. Leading European scientists and teachers were invited to hold a short presentation about their experiences in systems biology education as well as a round table discussion. It was decided to form a network of education performers in systems biology, an activity that will be pursued within ISBE and the ERASysApp ERANet. Education in interdisciplinary biology and medicine is key for the development of the human resource base and the field as a whole and hence this activity is expected to have long-lasting effects for the competitiveness of European RTD.

In connection to the “Gothenburg Life science Conference XI – Industrial Systems Biology”a press conference was held, leading to an article in the Swedish newspaper Dagens nyheter Aug 29, 2010. The same newspaper also published an article about Partner 2 and systems biology, in June 2010. In conjunction with the preparation of the ERASysApp proposal both partners communicated with representatives of the region Västra Götaland, which resulted in their involvement in the ERANet and first steps to integrate systems biology in certain aspects of regional policy and development. Therefore, FutureSysBio has succeeded to bring Systems Biology to the political agenda, at least at regional level. This is expected to have effects for the development of competence and the interaction between research, industry and political decision makers in the following years.

ICSB2008

Programme outline

International Conference on Systems Biology 2008 - at a glance

Friday August 22, 2008	
1000-1800	**Tutorial Programme (Chalmers University of Technology, Mathematical Sciences)**
Saturday August 23, 2008	
0900-1430	**Tutorial Programme (Chalmers University of Technology, Mathematical Sciences)**
1500-1800	**Opening session (Congress Hall)**
1800-2000	**Opening reception (Lobby)**
2000-2300	Visit to Liseberg amusement part (optional, entry free - attractions on own costs)
Sunday August 24, 2008	
0830-1030	**Plenary session 1: Network biology (Congress Hall)**
1100-1300	**Dedicated session 1-1: Cell-regulation - metabolism (Congress Hall)**
1100-1300	**Dedicated session 1-2: Standards and repositories (Room J1)**
1100-1300	**Dedicated session 1-3: Drug discovery (Room G3)**
1100-1300	**Dedicated session 1-4: Plant systems (Room G2)**
1300-1600	**Lunch break and coffee with specific activities**
1400-1530	Industry needs in systems biology (Room G3)
1400-1600	Speakers corners: morning speakers and previous day afternoon speakers available to meet
1300-1600	Posters, arenas, exhibition
1600-1800	**Plenary session 2: Understanding and curing diseases (Congress Hall)**
1800-2000	**Free viewing posters, arenas, exhibitions**
Monday August 25, 2008	
0830-1030	**Plenary session 3: Cell regulation (Congress Hall)**
1100-1300	**Dedicated session 2-1: Cell-regulation - signalling (Room G3)**
1100-1300	**Dedicated session 2-2: Modelling approaches (Congress Hall)**
1100-1300	**Dedicated session 2-3: Diagnostic markers and complex diseases (Room J1)**
1100-1300	**Dedicated session 2-4: Microbial systems (Room G2)**
1300-1500	**Lunch break and coffee with specific activities**
1330-1500	Funding needs and opportunities (Room G3)
1330-1500	Speakers corners: morning speakers and previous day afternoon speakers available to meet
1300-1500	Posters, arenas, exhibition
1500-2300	Excursion to Marstrand and Viking Dinner (requires separate booking - otherwise free evening)
Tuesday August 26, 2008	
0830-1030	**Plenary session 4: From cell to organ to organism (Congress Hall)**
1100-1300	**Dedicated session 3-1: Cell-to-cell variation (Room J1)**
1100-1300	**Dedicated session 3-2: Synthetic biology (Room G2)**
1100-1300	**Dedicated session 3-3: Software tools (Congress Hall)**
1100-1300	**Dedicated session 3-4: Model driven experimental planning (Room G3)**
1300-1600	**Lunch break and coffee with specific activities**
1400-1530	Education in interdisciplinary biology (Room G3)
1400-1600	Speakers corners: speakers of Aug 26 and 27 available to meet
1300-1600	Posters, arenas, exhibition
1600-1800	**Plenary session 5: New approaches to biotechnology (Congress Hall)**
1800-2000	**Free viewing posters, arenas, exhibitions**
Wednesday August 27, 2008	
0830-1030	**Plenary session 6: Genetic variation and evolution (Congress Hall)**
1100-1300	**Plenary session 7: Future challenges (Congress Hall) Sponsored by Novozymes**
1330-2030	**Workshop Programme (Wallenberg Conference Centre Medicinarberget)**
Thursday August 28, 2008	
0830-1800	**Workshop Programme (Wallenberg Conference Centre Medicinarberget)**

FEBS 2010

Programme outline

FEBS2010 Congress programme outline

	Saturday, June 26	Sunday, June 27	Monday, June 28
08.30–11.00		**Symposium A** **Molecules in Health and Disease** A1 – Ageing, Congress Hall	**Symposium A** **Molecules in Health and Disease** A2 – Molecular Immunology, Congress Hall
		Symposium B **Molecular Networks** B1 – Metabolic networks, Hall G3	**Symposium B** **Molecular Networks** B2 – Signal Transduction, Hall G3
		Symposium C **Molecules at Work** C1 – Molecular Machines, Hall G4	**Symposium C** **Molecules at Work** C2 – Biological Cycles, Hall G4
		Symposium D **Cellular Compartments** D1 – Secretory pathways, Hall G2	**Symposium D** **Cellular Compartments** D2 – Mitochondria, Hall G2
		Symposium E **Biomolecular Design and Function** E1 – Synthetic Biology, Hall J1	**Symposium E** **Biomolecular Design and Function** E2 – Molecular Recognition, Hall J1
11.00–11.30		**Coffee Break**	**Coffee Break**
11.30–12.30	**Registration** **12.00–18.30**	**Plenary Lecture** EMBO Lecture, Congress Hall *Uri Alon*	**Plenary Lecture** IUBMB Lecture, Congress Hall *Susan Lindquist*
12.30–13.00		**Lunch Service**, Hall H	**Lunch Service**, Hall H
13.00–15.30		**Poster exhibition and discussions** Hall H, G2, G3, G4	**Poster exhibition and discussions** Hall H, G3, G4
		Speakers corner, C-Balkongen	**Speakers corner**, C-Balkongen
		Activities by FEBS working groups Science and Society, Hall J1 Biofuels	**Activities by FEBS working groups** Education, Hall J1 Research, Teaching, Learning
			Young Scientist Forum, Hall G2 Scientific Careers **13.30–15.00**
			Research-Oriented Education at High Schools, Hall J1 **15.40–18.00**
15.30–17.00	**Opening speeches** **16.30–17.00** Congress Hall	**Technology Workshops** **(3 parallell sessions)** • Protein expression, Hall G2 • Life cell imaging, Hall G3 • Bioinformatics, Hall G4	**Technology Workshops** **(3 parallell sessions)** • Proteomics technologies, Hall G3 • Metabolomics, Hall G2 • Dynamic modelling, Hall G4
17.15–19.15	Nobel Laureate Lecture, Congress Hall *Roger Tsien* **17.00–18.00**	**Plenary Lectures** Nobel Laureate Lecture, Congress Hall *John Walker*	**Plenary Lectures** Nobel Laureate Lecture, Congress Hall *Elizabeth Blackburn*
	Opening mixer **18.00–20.00,** Hall H	Bücher Lecture, Congress Hall *Svante Pääbo*	Special event, Congress Hall *Uri Alon* (and his guitarr)
19.30–23.00		**Evening events** FEBS dinner, Blomstermåla, Särö *(on invitation)*	

Congress secretariat: Congrex Sweden AB, Box 5078, SE 402 22 Göteborg, Sweden
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	Tuesday, June 29	Wednesday, June 30	Thursday, July 1
08.30–11.00	**Symposium A** **Molecules in Health and Disease** A3 – Metabolic Diseases, Congress Hall	**Symposium A** **Molecules in Health and Disease** A4 – Neurobiology, Hall G3	**Symposium A** **Molecules in Health and Disease** A5 – Infectious Diseases, Congress Hall
	Symposium B **Molecular Networks** B3 – Global Networks, Hall G3	**Symposium B** **Molecular Networks** B4 – Gene regulation, Congress Hall	**Symposium B** **Molecular Networks** B5 – Regulation of protein function, Hall G3
	Symposium C **Molecules at Work** C3 – Extracellular structures, Hall J1	**Symposium C** **Molecules at Work** C4 – Membrane Transport, Hall G4	**Symposium C** **Molecules at Work** C5 – Energy transduction, Hall G2
	Symposium D **Cellular Compartments** D3 – Endocytosis, Hall G2	**Symposium D** **Cellular Compartments** D4 – Nucleus, Hall G2	**Symposium D** **Cellular Compartments** D5 – Chloroplasts, Hall G4
	Symposium E **Biomolecular Design and Function** E3 – Design of Macromolecules, Hall G4	**Symposium E** **Biomolecular Design and Function** E4 – Folding, Hall J1	**Symposium E** **Biomolecular Design and Function** E5 – Catalytic Mechanisms, Hall J1
11.00–11.30	**Coffee Break**	**Coffee Break**	**Coffee Break**
11.30–12.30	**Plenary Lecture** KREBS Medal Lecture, Congress Hall *Harald Stenmark*	**Plenary Lecture** DATTA Medal Lecture, Congress Hall *Juleen Zierath*	**Plenary Lecture** Nobel Laureate Lecture, Congress Hall *Venki Ramakrishnan*
12.30–13.00	**Lunch Service**, Hall H	**Lunch Service**, Hall H	**Closing ceremony** **12.30–13.00** Congress Hall
13.00–15.30	**Poster exhibition and discussions** Hall H, G2, G3, G4	**Poster exhibition and discussions** Hall H, G3, G4	
	Speakers corner, C-Balkongen	**Speakers corner**, C-Balkongen	
	Tutorials and Events & Corporate Seminars NMR and Biology – In Interaction, Congress Hall	**Tutorials and Events & Corporate Seminars** Database taster (by the EBI), Halll G2	**FEBS Council meeting**, Hall G4 continues July 2, *(on invitation only)*
	Activities by FEBS working groups Education, Hall J1 Practical Systems Biology	**Activities by FEBS working groups** Women in Science, Gender in Science, Hall J1	
15.30–17.00	**Technology Workshops** **(3 parallell sessions)** • Protein interactions, Hall G3 • Lipidomics, Hall G2 • Applying sequencing technologies, Hall G4	**Technology Workshops** **(3 parallell sessions)** • Protein structures, Hall G3 • Molecular imaging, Hall G2 • Network modelling, Hall G4	
17.15–19.15	**Plenary Lectures** Award Lectures, Congress Hall *Mercedes Munkonda, Hideo Iwai* Svedberg 2010 Lecture, Congress Hall *Per Jemth*	**Plenary Lecture** Women in Science Award, Congress Hall *Ingrid Grummt*	
19.30–23.00	**Evening events** Midsummer party, Trädgårdsföreningen *(sep. payment)*		

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ICSB2010

Programme outline

Sunday's Programme at a Glance

Sunday 10 October

Time	Pentland Suite			
	Pentland Auditorium	Sidlaw	Fintry	Tinto
08:30 - 12:30	Tutorial 5	Tutorial 7	Tutorial 1	Tutorial 8
12:30 - 13:30	Break			
13:30 - 17:30				Tutorial 15
17:30 - 18:00	Break			
18:00 - 20:00	Opening Ceremony **Nigel Brown, Igor Goryanin & Ursula Klingmüller** OS1.1			
	Moorfoot	Kilsyth	Carrick 1	Carrick 2
08:30 - 12:30	Tutorial 9	Tutorial 4	Tutorial 11	Tutorial 12
12:30 - 13:30	Break			
13:30 - 17:30	Tutorial 19	Tutorial 13	Tutorial 14	Tutorial 18
17:30 - 18:00	Break			
	Carrick 3	Ochil 1	Ochil 2	Ochil 3
08:30 - 12:30	Tutorial 2	Tutorial 3	Tutorial 10	Tutorial 16
12:30 - 13:30	Break			
13:30 - 17:30	Tutorial 20	Tutorial 21	Tutorial 22	Tutorial 17
17:30 - 18:00	Break			
	Cromdale Hall			
20:00 - 22:00	Welcome Reception			

Monday's Programme at a Glance

Monday 11 October

Time	Pentland Suite				
	Pentland Auditorium	Sidlaw	Fintry	Tinto	Cromdale Hall
08:30 - 09:30	**Plenary Session 1** **Dr Steve Kay** PL1.1				
09:30 - 10:00	**Coffee Break in Cromdale**				
	Parallel Session 1 Applications in Medicine *Co-Chairs:* **David Harrison** **Gordon Mills**	**Parallel Session 2** Functional Genomics and Biological Networks *Co-Chairs:* **Jean Beggs** **Mike Tyers**	**Parallel Session 3** Computational Theory in Systems Biology *Co-Chairs:* **Mark Girolami** **Jane Hillston**	**Parallel Session 4** The Spatial Dimensions of Intracellular Dynamics *Chair:* **Martin Howard**	
10:00 - 10:30	**David Harrison** PS1.1	**Lars Steinmetz** PS2.1	**Michael Stumpf** PS3.1	**Jonathon Howard** PS4.1	
10:30 - 11:00	**Gordon Mills** PS1.2	**Jürg Bähler** PS2.2	**Jasmin Fisher** PS3.2	**Karsten Kruse** PS4.2	
11:00 - 11:30	**Stefan Schuster** PS1.3	**Tim Hughes** PS2.3	**Julien Ollivier** PS3.3	**Andrew Goryachev** PS4.3	
11:30 - 12:00	**Sven Nelander** PS1.4 **Andrey Morgun** PS1.5	**Julie Ahringer** PS2.4	**Clive Bowsher** PS3.4 **Magnus Rattray** PS3.5	**David Odde** PS4.4	
12:00 - 13:30	**Lunch**				
13:30 - 14:30	**Plenary Session 2** **Dr Thomas Pollard** PL2.1				
14:30 - 15:00	**Coffee Break in Cromdale**				
	Parallel Session 1 Applications in Medicine *Co-Chairs:* **David Harrison** **Gordon Mills**	**Parallel Session 2** Functional Genomics and Biological Networks *Co-Chairs:* **Jean Beggs** **Mike Tyers**	**Parallel Session 3** Computational Theory in Systems Biology *Co-Chairs:* **Mark Girolami** **Jane Hillston**	**Parallel Session 4** The Spatial Dimensions of Intracellular Dynamics *Chair:* **Andrew Goryachev**	
15:00 - 15:30	**Andrei Zinovyev** PS1.6	**Mark Biggin** PS2.5 **David Amberg** PS2.6	**François Fages** PS3.6	**Philippe Bastiaens** PS4.5	
15:30 - 16:00	**Dana Faratian** PS1.7	**Bernd Bodenmiller** PS2.7	**Andrzej Kierzek** PS3.7	**Martin Howard** PS4.6	
16:00 - 16:30	**Niels Grabe** PS1.8 **Stanley Shaw** PS1.9	**Brenda Andrews** PS2.8	**Elisenda Feliu** PS3.8 **Jean Peccoud** PS3.9	**Lutz Brusch** PS3.7 **Brian Drawert** PS3.8	
16:30 - 17:00	**Ben-Fillippo Krippendorff** PS1.10	**Philip Hieter** PS2.9	**Bernie Daigle Jr** PS3.10	**Tyler Drake** PS3.9	
17:00 - 19:00		**Session 2** Invited Speakers are sponsored by: **UNICELLSYS**			**Poster Session** P01.01 - P01.749

Tuesday's Programme at a Glance

Tuesday 12 October

Time	Pentland Suite				
	Pentland Auditorium	Sidlaw	Fintry	Tinto	Cromdale Hall
08:30 - 09:30	**Plenary Session 3** **Dr Luis Serrano** PL3.1				
09:30 - 10:00	**Coffee Break in Cromdale**				
	Parallel Session 5 Biomedical Simulations *Co-Chairs:* **Jacques Demongeot** **Albert Goldbeter**	**Parallel Session 6** Understanding the Brain Function *Co-Chairs:* **Douglas Armstrong** **Nicolas Le Novere**	**Parallel Session 7** Computational Methods and Tools *Co-Chairs:* **Sophia Ananiadou** **Pedro Mendes**	**Parallel Session 8** Cell Signalling Dynamics *Co-Chairs:* **Boris Kholodenko** **Hans Westerhoff**	
10:00 - 10:30	**Michael Mackey** PS5.1	**Jean-Antoine Girault** PS6.1	**Andrey Rzhetsky** PS7.1	**Mariko Hatakeyama** PS8.1	
10:30 - 11:00	**Francis Levi** PS5.2	**Nicolas Le Novere** PS6.2	**Ursula Kummer** PS7.2	**Walter Kolch** PS8.2	
11:00 - 11:30	**Luis Mendoza** PS5.3	**Angus Silver** PS6.3	**Joerg Schaber** PS7.3	**Tim Elston** PS8.3	
	Marike Boer PS5.4		**Dominik Lutter** PS7.4		
11:30 - 12:00	**Tilo Buschmann** PS5.5	**Jeannette Kotaleski** PS6.4	**Holger Perfahl** PS7.5	**Jan Hoek** PS8.4	
12:00 - 13:30	**Lunch**				
13:30 - 14:30	**Plenary Session 4** **Professor David Rand** PL4.1 Supported by: AstraZeneca				
14:30 - 15:00	**Coffee Break in Cromdale**				
	Parallel Session 5 Biomedical Simulations *Co-Chairs:* **Jacques Demongeot** **Albert Goldbeter**	**Parallel Session 6** Understanding the Brain Function *Co-Chairs:* **Douglas Armstrong** **Nicolas Le Novere**	**Parallel Session 7** Computational Methods and Tools *Co-Chairs:* **Sophia Ananiadou** **Pedro Mendes**	**Parallel Session 8** Cell Signalling Dynamics *Co-Chairs:* **Boris Kholodenko** **Hans Westerhoff**	
15:00 - 15:30	**Geneviève Dupont** PS5.6	**Dongkwan Shin** PS6.5	**Tom Freeman** PS7.6	**Nils Blüthgen** PS8.5	
		Britta Goebel PS6.6			
15:30 - 16:00	**Thomas Höfer** PS5.7	**Kui Qian** PS6.7	**Sophia Ananiadou** PS7.7	**Frank Bruggeman** PS8.6	
16:00 - 16:30	**Daniel Victor Guebel** PS5.8	**Douglas Armstrong** PS6.8	**Catherine Lichten** PS7.8	**Kwang-Hyun Cho** PS8.7	
	Fedor Kolpakov PS5.9		**Eva Balsa-Canto** PS7.9	**Karen van Eunen** PS8.8	
16:30 - 17:00	**Claude Gérard** PS5.10	**Erich Wanker** PS6.9	**Douwe Molenaar** PS7.10	**Verena Becker** PS8.9	
17:00 - 19:00					**Poster Session** P02.02 - P02.748

Wednesday's Programme at a Glance

Wednesday 13 October

Time	Pentland Suite			
	Pentland Auditorium	Sidlaw	Fintry	Tinto
08:30 - 09:30	**Plenary Session 5** **Mike Tyers** PL5.1			
09:30 - 10:00	**Coffee Break in Cromdale**			
	Parallel Session 9 Systems Biology in Health and Disease *Chair:* **Matej Oresic**	**Parallel Session 10** Parameterising Proteomics *Co-Chairs:* **Rob Beynon** **Simon Hubbard**	**Parallel Session 11** Biological Rhythms *Co-Chairs:* **Andrew Millar** **Hanspeter Herzel**	**Parallel Session 12** Combinatorial Multi-scale Systems Responses in Biology and Medicine *Chair:* **Peter Ghazal**
10:00 - 10:30	**Iya Khalil** PS9.1	**Marc Vidal** PS10.1	**John Hogenesch** PS11.1	**Richard Baldock** PS12.1
10:30 - 11:00	**Marta Cascante** PS9.2	**Christian von Mering** PS10.2	**Markus Kollmann** PS11.2	**Jane Hillston** PS12.2
11:00 - 11:30	**Thomas Handorf** PS9.3	**Mike White** PS10.3	**Pal Westermark** PS11.3	**Iain Fraser** PS12.3
11:30 - 12:00	**Julio Saez-Rodriguez** PS9.4 **Ines Thiele** PS9.5	**Simon Hubbard** PS10.4	**Elan Gin** PS11.4 **Carl Troein** PS11.5	**Vincent Danos** PS12.4
12:00 - 13:30	**Session on the Industry Needs** See page 74			**Lunch**
13:30 - 14:30	**Plenary Session 6** **Mike Levine** PL6.1			
14:30 - 15:00	**Coffee Break in Cromdale**			
	Parallel Session 9 Systems Biology in Health and Disease *Chair:* **Marta Cascante**	**Parallel Session 10** Parameterising Proteomics *Co-Chairs:* **Rob Beynon** **Simon Hubbard**	**Parallel Session 11** Biological Rhythms *Co-Chairs:* **Andrew Millar** **Hanspeter Herzel**	**Parallel Session 12** Combinatorial Multi-scale Systems Responses in Biology and Medicine *Chair:* **Vincent Danos**
15:00 - 15:30	**Decio Eizirik** PS9.6	**Paola Picotti** PS10.5	**Andrew Oates** PS11.6	**James Faeder** PS12.5
15:30 - 16:00	**Matej Oresic** PS9.7	**Muriel Cocaign-Bousquet** PS10.6	**Bela Novak** PS11.7	**Jean Krivine** PS12.6
16:00 - 16:20	**Suzanne Geenen** PS9.8	**Victor Andreev** PS10.7	**Matteo Barberis** PS11.8	**Leah Band** PS12.7
16:20 - 16:40	**Santiago Schnell** PS9.9	**Thierry Le Bihan** PS10.8	**Michaela de Clare** PS11.9	**Imran Shah** PS12.8
16:40 - 17:00	**Lei Yang** PS9.10	**Philipp Lange** PS10.9	**Douglas Murray** PS11.10	**Marco Morelli** PS12.9

Thursday's Programme at a Glance

Thursday 14 October

Time	Pentland Suite					
	Pentland Auditorium	Sidlaw	Fintry	Tinto	Moorfoot	Kilsyth
08:30 - 09:30	**Plenary Session 7** **Sydney Brenner** PL7.1					
09:30 - 10:00	**Coffee Break in Cromdale**					
	Parallel Session 13 Engineering Aspects in Systems Biology *Co-Chairs:* **Tae Yong Kim** **Jens Nielsen**	**Parallel Session 14** Systems Biology and Metabolism *Co-Chairs:* **Douglas Kell** **Uwe Sauer**	**Parallel Session 15** Systems Science Behind Medical Application in Industry *Co-Chairs:* **Pierre De Meyts** **Don Stanski**	**Parallel Session 16** Biological Noise and Cellular Decision-Making *Co-Chairs:* **Mans Ehrenberg** **Peter Swain**		
10:00 - 10:30	**Jens Nielsen** PS13.1	**Jules Griffen** PS14.1	**Steen Hvass Ingwersen** PS15.1	**Roy Kishony** PS16.1		
10:30 - 11:00	**Diethard Mattanovich** PS13.2	**Pedro Mendes** PS14.2	**Vladislav Kiselyov** PS15.2	**Tetsuya Kobayashi** PS16.2 **James Locke** PS16.3		
11:00 - 11:20	**Andreas Kremling** PS13.3	**Matthias Heinemann** PS14.3	**Graham Smith** PS15.3	**Theodore Perkins** PS16.4		
11:20 - 11:40	**Vitor Martins dos Santos** PS13.4	**Pinar Pir** PS14.4	**Neil Benson** PS15.4	**Rosalind Allen** PS16.5		
11:40 - 12:00	**Ronan Fleming** PS13.5	**Edda Klipp** PS14.5	**Lars Kuepfer** PS15.5	**Martin Hoffmann** PS16.6		
12:00 - 13:30	**Lunch**					
13:30 - 14:30	**Plenary Session 8** **Aldons J. Lusis** PL8.1	*Kindly supported by an unrestricted educational grant by GENESYS*				
14:30 - 15:00	**Coffee Break in Cromdale**					
	Parallel Session 13 Engineering Aspects in Systems Biology *Co-Chairs:* **Tae Yong Kim** **Jens Nielsen**	**Parallel Session 14** Systems Biology and Metabolism *Co-Chairs:* **Douglas Kell** **Uwe Sauer**	**Parallel Session 15** Systems Science Behind Medical Application in Industry *Co-Chairs:* **Pierre De Meyts** **Don Stanski**	**Parallel Session 16** Biological Noise and Cellular Decision-Making *Co-Chairs:* **Mans Ehrenberg** **Peter Swain**		
15:00 - 15:30	**Tae Yong Kim** PS13.6	**Joshua Rabinowitz** PS14.6	**Matthias Machacek** PS15.6	**Victor Sourjik** PS16.7	**GENESYS Poster Session**	
15:30 - 16:00	**Christoph Whittman** PS13.7	**Wolfram Weckwerth** PS14.7	**Henning Schmidt** PS15.7	**Franziska Matthaeus** PS16.8		
16:00 - 16:20	**Juan Castrillo** PS13.8	**Jörg Büscher** PS14.8	**Hitesh Mistry** PS15.8	**Peter Rein ten Wolde** PS16.9		
16:20 - 16:40	**Alessandro Abate** PS13.9	**Johann Rohwer** PS14.9	**Avijit Ghosh** PS15.9	**Darren Wilkinson** PS16.10		
16:40 - 17:00	**Pietro Lio** PS13.10	**Maia Donahue** PS14.10	**Ewan Hunter** PS15.10	**Nacho Molina** PS16.11		
17:00 - 17:15	**Break**					
17:15 - 18:15	**Closing Ceremony** **Tony Hey**					
18:15 - 20:00					**GENESYS Reception**	

ICSB2011

Programme outline

ICSB2011
SCHEDULE OVERVIEW

TIME	SUNDAY 28 August	MONDAY 29 August	TUESDAY 30 August	WEDNESDAY 31 August	THURSDAY 1 September
08:30-10:30	**08:30-13:30 Workshops and Tutorials in Heidelberg (continued from Saturday)**	**Plenary Session 2: Structure of Life** - Philippe Bastiaens - Gaudenz Danuser - Josef A. Käs	**Plenary Session 3: How to Connect** - Yitzhak Pilpel - Rob de Boer - Sandro J. de Souza	**Plenary Session 4: Metabolism and More** - Eytan Ruppin - Uwe Sauer - Judy Armitage	
10:30-11:00		Coffee Break	Coffee Break	Coffee Break	**Plenary Session 6: The Complex Side of Life** - Naama Barkai *Klaus Tschira Foundation Lecture* - Peer Bork - Andrew J. Millar
11:00-13:00		Parallel Sessions 1	Parallel Sessions 3	Parallel Sessions 4	Coffee Break **Honorary Lecture** - Alexander van Oudenaarden **Closing Ceremony**
13:00-15:00	Opening of Registration	Lunch Break and Coffee, Industry Exhibition, Science Arena and Posters 14:00-14:45 Industry Lecture: Dieter Münk, Vice President IBM Storage	Lunch Break and Coffee, Industry Exhibition, Science Arena and Posters Poster Session II *Sponsored by Selventa* 14:30-16:00 INDUSTRY SESSION	Lunch Break and Coffee, Industry Exhibition, Science Arena and Posters 13.30-15.00 Workshop by Mathworks: Modeling in Biotech, Pharma and Academic Research Using SimBiology and MATLAB 14:00-15:00 Session by Nature Publishing Group: How to Get Published	
15:00-16:00	Opening Ceremony - Roland Eils, Conference President - Helge Braun, Parliamentary State Secretary BMBF - Simone Schwanitz, MWK BW - Otmar D. Wiestler, Vice-President Helmholtz Association	Honorary Lecture: - James H. Simons		Parallel Sessions 5	Workshops and Tutorials in Heidelberg (continues till Friday)
16:00-17:00	**Plenary Session 1: SB Unlimited** - Jean Peccoud - Markus Covert	**Plenary Lecture: Genetic Networks** - Trey Ideker	Conference Excursion to Heidelberg (incl. Boat Trip on the Neckar)		
17:00-18:00	Coffee Break	Coffee Break Parallel Sessions 2		Coffee break	
18:00-19:00	**Plenary Session 1: SB Unlimited** - Kim Sneppen			Plenary Session 5: Last Minute Plenary Session (in Cooperation with Molecular Systems Biology)	
19:00-20:00	**Honorary Lecture** - Roger Y. Tsien *Supported by Chroma Technology Corp.*	Evening Poster Session I *Sponsored by Selventa* Industry Exhibition and Science Arena Open 19:00-21:00 Workshop Raytest Isotopenmessgeräte GmbH: Imagestream			
20:00	Welcome Reception *Sponsored by ACS Publications*	Bio:Fiction@ICSB2011-Mannheim, Award-Winning Filmlets on Synthetic Biology and Panel Discussion	Conference Dinner @ Castle Heidelberg	20:00 Sysbio Party Night *Sponsored by Chroma Technology Corp. and Nikon GmbH Deutschland* with Party Lecture by Hiroaki Kitano, Live Music and Grill	

Please note that besides the dedicated exhibition hours, Industry Exhibition, Science Arena and Poster Area will be open throughout the conference until Wednesday afternoon.

INDEX

Functional genomics conference on Chemical biology 2009 Programme outline

10th FUNCTIONAL GENOMICS CONFERENCE

CHEMICAL BIOLOGY – MOLECULES TO PROBE LIFE

SCIENTIFIC PROGRAM

Day 1; Monday 24/8

8.00 – 9.00 Registration

9.00 – 9.10 Welcome and introduction

Session I: **"Chemical biology of signal transduction"**

Chairperson: Laura Kiessling

9.10 – 9.50 Kevan Shokat (Univ. California San Francisco, USA)
"Chemical genetic analysis of kinase signaling networks"

9.50 – 10.30 Anton Simeonov (NIH, USA)
"The NIH chemical genomics center: bringing advanced technologies to academic probe and lead discovery"

10.30 – 11.00 *Coffee/Posters/Exhibition*

11.00 – 11.40 Michael Famulok (Univ. Bonn, DE)
"The chemical biology of small GEF function"

11.40 – 12.00 Sonia Lain (Univ. Dundee, UK)
"Discovery, *in vivo* activity, and mechanism of action of small molecule p53 activators"

12.00 – 13.20 *Lunch/Posters/Exhibition*

13.20 – 14.00 Kip Guy (St Jude's Hospital, USA)
"Manipulating the function of nuclear hormone receptors after ligand binding"

Day 1; Monday 24/8

Session II: "**Probing cell-cell communication**"

Chairperson: Carsten Schultz

14.00 – 14.40 Laura Kiessling (Univ. Wisconsin, USA)
"Chemical probes of carbohydrate biosynthesis in Mycobacteria"

14.40 – 15.00 Ulf Nilsson (Univ. Lund, SE)
"High-affinity and selective compounds for studies of galectin biology and molecular recognition mechanisms"

15.00 – 15.20 Christopher Southan (ChrisDS Consulting, SE)
"Quantitative assessment of the expanding complementarity between public and commercial databases of bioactive compounds"

15.20 – 15.50 *Coffee/Posters/Exhibition*

15.50 – 16.10 Michael Elofsson (Univ. Umeå, SE)
"Targeting toxin delivery - small molecule inhibitors of type III secretion in gram-negative bacteria"

16.10 – 16.30 Annika Jenmalm Jensen (BioVitrum/KI, SE)
"Identification of the BioVitrum FPRL1 agonists as pro-inflammatory mediators"

16.30 – 17.10 Ronald Raines (Univ. Wisconsin, USA)
"Enzymes as chemotherapeutic agents"

Boat trip to Älvsborg fortress, dinner (optional)

17.30 Bus leaves for harbour
18.00 Boat leaves for island

Day 2; Tuesday 25/8

Session III: **"Assessing biological function"**

Chairperson: Kip Guy

9.00 – 9.40 Guri Giaever (Univ. Toronto, CAN)
"Chemogenomic tools to understand drug action and gene function"

9.40 – 10.00 Henrik Pavia (Univ. Gothenburg, SE)
"Chemical mediation of biological invasion by the red alga *Bonnemaisonia hamifera*, a candidate species for applied secondary metabolite production"

10.00 – 10.20 Morten Grøtli (Univ. Gothenburg, SE)
"Development of kinase inhibitors - tools for dissecting the HOG1 pathway."

10.20 – 11.00 *Coffee/Posters/Exhibition*

11.00 – 11.40 Carsten Schultz (EMBL, DE)
"Probe development for visualisation and modulation of cell functions"

11.40 – 12.00 Fredrik Almqvist (Univ. Umeå, SE)
"Pilicides and curlicides – novel antibacterial agents targeting bacterial virulence"

12.00 – 13.20 *Lunch*

13.20 – 14.00 Corey Nislow (Univ. Toronto, CAN)
"Modulating gene dose to understand drug action in yeast and man"

14.00 – 15.00 (approx) **Panel discussion: "What benefits will chemical biology bring in the next five years?"**

Conference closure

Gothenburg Life Science Conference on Industrial Systems Biology 2010

Programme outline

Scientific Program

Thursday, August 19

08:00 – 09:00 **Registration**

09:00 – 09:15 **Welcome and registration**
Jens Nielsen, Conference Chair, Chalmers
Stefan Bengtsson, Vice President of Chalmers

Session I: Impact of Systems Biology on Industrial Biotechnology
Chairperson: Stefan Hohmann, University of Gothenburg

09:10 – 09:50 Jens Nielsen, Chalmers University
"Genome-scale metabolic networks: The core of Industrial Systems Biology" (S1)

09:50 – 10:30 Vassily Hatzimanikatis, EPFL
"The Impact of Computational Systems Biology on Industrial Biotechnology" (S2)

10:35 – 11:15 COFFEE, POSTERS and EXHIBITION

11:00 – 11:20 Kiran Patil, DTU
"Metabolic engineering of Saccharomyces cerevisiae – From in silico models in vivo cell factories" (S3)

11:20 – 11:40 Matthias Heinemann, ETH Zürich
"Bistability in E. coli's central metabolism" (S4)

11:40 – 12:00 Elmar Heinzle, Saarland University
"Engineering Mixed Sustrate Uptake by C.glutamicum" (S5)

12:00 – 13:00 LUNCH, POSTERS and EXHIBITION

Scientific Program

Session II: Sustainable production of chemicals
Chairperson: Dina Petranovic, Chalmers University

13:20 – 14:00	Sang Yup Lee, KAIST **"Systems Metabolic Engineering of E. Coli for the production of Polymers" (S6)**
14:00 – 14:30	Christoph Wittmann, TU Braunschweig **"Towards next-generation bioprocesses – Systems-wide metabolic engineering of the industrial working horse Coryunebacterium glutamicum for superior production" (S7)**
14:30 – 15:00	Andrew C. Eliot, DuPont **"Approaches to metabolic engineering of organisms for chemical production" (S8)**
15:00 – 15:30	COFFEE, POSTERS and EXHIBITION
15:30 – 16:00	Alan Berry, Novozymez **"Application of metabolic engineering to the production of reneable chemicals" (S9)**
16:00 – 16:20	Verena Siewers, Chalmers University **"Seconday Metabolic production in Yeast" (S10)**
16:20 – 16:40	Jochen Förster, Fluxome **"Production of resveratrol using Saccharomyces cerevisiae" (S11)**
16:40 – 17:00	Erik Appelman, Perstorp **"Chemical versus biotech production of butanol" (S12)**

Boat trip to Älvsborg fortress, dinner (Optional)

17:30	Bus leaves for harbor
18:00	Boat leaves for Island

Scientific Program

Friday, August 20

Session III: Production of biofuels
Chairperson: Jens Nielsen, Chalmers

09:00 – 09:40	Jay Keasling, JBEI & UC Berkeley **"Engineering microbial metabolism for production of advanced biofuels" (S13)**
9:40 – 10:20	Greg Stephanopoulos, MIT **"Challenges in biofuel production from renewable feedstocks" (S14)**
10:20 – 11:00	COFFEE, POSTERS and EXHIBITION
11:00 – 11:40	Jack Pronk, TU Delft **"Saccharomyces cerevisiae: A versatile Metabolic Engineering platform for bulk chemicals production" (S15)**
11:40 – 12:00	Gunnar Liden, University of Lund **"Adapting the yeast to the process environment – or vice versa? (S16)**
12:00 – 12:30	John Pierce, BP **"Advancing biofuels" (S17)**
12:30 – 14:00	LUNCH, POSTERS and EXHIBITION
13:00 – 14:00	**Press Conference** – Upon invitation only

Scientific Program

14:00 – 14:30	Karl Sanford, Genencor/Danisco **"Design and Operation of a Cell Factory to Produce Isoprene" (S18)**
14:30 – 14:50	Lisbeth Olsson, Chalmers University **"Microorganisms for bioethanol production – From lab medium to large scale lignocellulosic fermentations" (S19)**
14:50 – 15:10	Michael Leavell, Amyris **"Microbial production of renewable diesel fuel: The role of industrials systems biology in strain benchmarking and improvement" (S20)**
15:10	**Conference closure**
15:30 – 17:00	**Round Table Discussion: Industrial Biotechnology – A Swedish Perspective –** Upon invitation only Promoter: Jens Nielsen, Chalmers

Workshop1

What is needed for Systems Biology to enter the clinic?

Programme outline

FutureSysBio Workshop

"What is needed for systems biology to enter the clinic?"

Wednesday, November 19
Informal get-together in the evening

Thursday, November 20

0900-0915	Welcome
0915-1000	Overview and perspectives
1000-1100	Roundtable introductions
1100-1115	Coffee
1115-1230	Introduction to questions
1230-1330	Lunch
1330-1530	Discussion in groups (incl coffee)
1530-1700	Presentations
1700-1800	Plenum discussions
1800-1900	Write up
1900-	Dinner

Friday, November 21

0830-1200	Further discussions, write up, open
1200-1300	Lunch
1300	End and departure

Workshop2

Defining modelling strategies for systems biology

Programme outline

FutureSysbio Workshop: Defining Modeling Strategies

January 20-21, Göteborg, Sweden

Objectives:
Mathematical modelling of biological networks and processes is still in its early phases. The field requires novel approaches for abstraction, for modelling bioprocesses that follow different biochemical and biophysical rules, and for combining different modules into larger models that still allow realistic simulation with the computational power available today.

This workshop should bring together experts from mathematics, theoretical physics, systems science, engineering and computer sciences, and industry participants. Focus will be very much on open discussions and brainstorming around specific topics and questions.

The outcome of the workshop will be documented and disseminated in various reports to different target groups and as a publication in a suitable scientific journal.

Dinner on Wednesday Jan19@19:30

Babar Restaurant
Kungsportsavenyn 29

Agenda

January 20

9:00 Welcome note

9: 10 Informal presentations
- Pedro Mendes TBA
- Frank Tobin "Some Computational Challenges in Parameter Determination for Modeling"

10:00 Coffee break

10:30 Informal presentations
- Jörg Stelling TBA
- Edda Klipp TBA
- Matthias Heinemann "How to get from rough topological knowledge and little/insufficient data to kinetic models of larger systems?"

12:00 Lunch

13:00 Informal presentations
- Natasa Przulj "Graph-theoretical modelling of biological networks"
- Riccardo Zecchina "Advanced distributed algorithms for Systems Biology"

14:00 Post-it: Keywords distribution on whiteboard

15:00 coffee break

15:30 Open discussion / informal presentations

18:00 Dinner @ Chalmersska Huset

January 21

9:00	Group writing
10:00	Coffee break
10:30	Going trough notes
12:00	Lunch
13:00	writing up a report/paper
15:00	Departure

Venue:
Chalmersska Huset, Södra Hamngatan 11

Financing:
The FutureSysBio project will cover all participants' costs (flight, hotel and meals) as far as they are within the usual range (economy class ticket)

Reimbursements:
Send your receipts to:

Erica Dahlin
Chalmers University of Technology
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Workshop3
Protein-Protein Interaction Annotation Jamboree
Programme outline

Protein-Protein Interaction Annotation Jamboree

September 23-25

Chalmers University of Technology, Gothenburg, Sweden

Objectives

There are several high-throughput studies on protein-protein interactions and there are several databases collecting interaction information, with the BioGRID being the most comprehensive collection of information as it also includes annotation of individual interactions. However, there are currently only sparse efforts on collecting information about directional interactions, protein state dependent interaction, protein complex dependent interactions etc. The research group of Kitano has initiated an effort to establish a genome-wide interaction map for the yeast *S. cerevisiae* that takes this into account, and recently the group of Nielsen has also started to establish a map around four key protein kinases in this yeast. Such map will serve as important scaffold for integrated data analysis as well as for building detailed kinetic models of specific signal transduction pathways. In order to establish a consensus network, and a coordinated push forward in this field an annotation jamboree at Chalmers, Sweden, is planned for September 23-25. The results of the jamboree will be collected into a consensus protein-protein interaction network that will form the basis for a publication.

Program

A program for the jamboree is

September 23

14:00	Objectives and plan for the workshop, Jens Nielsen and Goutham Vemuri
14:30	Short presentation about BioGRID, Andrew Winter
15:00	Coffee break
15:30	Plenum discussion about setting standards for protein states, protein complexes etc.
19:00	Dinner at conference center

September 24

09:00	Introduction and status on CellDesigner, Hiroaki Kitano
09:30	Annotation of protein-protein interaction networks *Will take place in smaller groups that focus on different parts, e.g. apoptosis, cell cycle, Snf1/Pka1, Tor1/N-regulation, MAPK, …* *The group discussions will be interrupted by shorter plenum meetings where interactions between the smaller networks are being discussed*
10:30	Coffee break
11:00	Continued work
12:00	Lunch
13:00	Continuation of annotation from the morning; Coffee break at 15:00
19:00	Dinner in **Pasta +** restaurant**,** Södra Vägen 2, Gothenburg

September 25

09:00	Plenum discussions and presentations from the groups
10:30	Coffee break
11:00	Continued annotation
12:00	Lunch
13:00	Conclusions and round-off
14:00	Departure

Software platform

It is proposed to use CellDesigner as a software platform for the annotation as this will allow easy transfer to SMBL format as well as to Cytoscape. Payao/Payaologue may be a possible platform for collective annotation work as it works closely with CellDesigner.

Venue

The Jamboree will be held at Hällsnäs Konferens & Affärsklubb (www.hallsnas.se). The hotel is easy accessible from Landvetter Airport by taxi.

Financing

The organizers will ensure funding to cover most of the costs associated with the Jamboree, as this will be held in connection with the EU-funded project FutureSysBio.

Workshop 4
Systems Biology for Industrial Biotechnology in Europe
Programme outline

FUTURESYSBIO WORKSHOP

Systems Biology for Industrial Biotechnology in Europe

Date: Tuesday, 1st November 2011

Venue: **Novo Nordisk Foundation Center for Biosustainability**
Scion-DTU
Fremtidsvej 3
2970 Hørsholm

Contacts: **Jens Nielsen**, Coordinator
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Local contact: **Helle Grunnet-Jepsen,** Management assistant
(hlgj@biosustain.dtu.dk, **tel: +45 45258002**)

Monday, October 31st 2011

Hotel: **Best Western Mercur Hotel**, *Vester Farimagsgade 17, 1606 Copenhagen V* (*www.mercurhotel.dk*)

19:00 Dinner at **Nimb Brasserie**, *entrance outside Tivoli, opposite train station, address: Bernstorffsgade 5, 1577 Copenhagen (www.tivoli.dk/composite-8817.htm)*

Tuesday, November 1st 2011

AGENDA

09:00-09:20	Registration and *coffee*
09:20-09:40	Welcome – Jens Nielsen
09:40-10:00	CFB – Jochen Förster: The Center
10:00-10:20	CFB – Jens Nielsen: Fungal Cell Factories
10:20-10:40	CFB – Søren Brunak: Systems Metagenomics
10:40-11:00	*Coffee break*
11:00-11:20	CFB – Søren Molin: Bacterial Cell Factories
11:20-11:40	DTU – Uffe Mortensen: Development of expression platforms for fungi
11:40-12:00	Lund Uni – Gunnar Lidén: Current issues in biofuel research at Lund University
12:00-13:00	*Lunch at Søhuset*

13:20-13:40 CFB – Birger Møller: Plant Pathway Discovery

13:40-14:00 TUD – Aljoscha Wahl: Hybrid systems modeling for the estimation of dynamic fluxes from ^{13}C labeling experiments

14:00-14:20 ETH – Matthias Heinemann: „Lag phases“ – new insights on a long-known phenomenon

14:20-14:40 Stuttgart Uni – Ralf Takors: Deciphering regulatory networks based on transient gene expression data

14:40-15:00 *Coffee break*

15:00-15:20 Siegen Uni/Jülich – Katharina Nöh: ^{13}C-Metabolic Flux Analysis – Next Generation Tools and Technologies

15:20-15:40 Saarlandes Uni – Konstantin Schneider: Combined application of ^{13}C fluxomics and elementary mode analysis for yeast network studies

15:40-16:00 DSM – Marco de Groot: Industrial applications of advanced metabolic engineering

16:00-16:20 *Coffee break*

16:20-16:40 Chr Hansen – Mads Bennedsen: From Genome sequences to genes and pathways of interest

16:40-17:00 Novozymes – Thomas Grotkjær: Cell factories for industrial enzyme and chemicals production

17:00-17:20 BASF – Andrea Molt: White Biotechnology @ BASF - Production of chemicals by fermentation

17:20-17:40 Closure – Jens Nielsen

19:00 Dinner at restaurant **Il Peccato**, *Axeltorv 8, 1609 Copenhagen V* (www.il-peccato.dk/ENG/Main_P.html)

Workshop 5

Challenges in future education and training

Programme outline

ICSB2011/FUTURESYSBIO WORKSHOP

Challenges in Future Education and Training

August 28, 2011, Heidelberg

Programme:

9-10 Introduction and short presentations
10-11 Round table discussion

Short presentations:

Stefan Hohmann, University of Gothenburg, Sweden - TBA

Stefan Hohmann(Anders Blomberg), University of Gothenburg, Sweden - TBA

Marta Cascante, Universitat de Barcelona, Spain - Teaching to Master students from different backgrounds: the Computational Systems Biology and Biohealth Computing experiences

Chris Workman, DTU, Denmark- Challenges of developing the Systems Biology MSc program at DTU

Hans Westerhoff, University of Manchester, UK - Multi-inter and Transdisciplinary Training

Pedro Mendes, University of Manchester, UK - Distance Learning in Computational Systems Biology

Gunnar Cedersund, University of Linköping, Sweden - Adopting bioengineering educations to include a red thread of systems biology

Ursula Kummer, Heidelberg University, Germany- The major program "systems biology" at the University of Heidelberg