

# de.NBI Quarterly Newsletter

## EDITORIAL

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Dear de.NBI members, dear de.NBI followers,

With the beginning of the prolongation phase of the de.NBI funding in March 2018, de.NBI has launched an image video that is online since 3 May at the de.NBI web page and YouTube. In the last three months, a number of activities took place in the network. In the frame of its symposium activities, de.NBI organized a day within the 12<sup>th</sup> CeBiTec-Symposium "Big Data in Medicine and Biotechnology (19-21 March 2018) at Bielefeld University and invited the speakers of the **ELIXIR Use Cases (Communities)** to present their plans to a German and international audience. Being the first meeting where all ELIXIR communities met for a first time, it became clear that ELIXIR-Germany and de.NBI members are already active in these communities and there are many common interests. Especially, the three newly established communities Proteomics, Metabolomics and Galaxy have been driven by German scientists. The Galaxy community is even co-led by our RBC Freiburg partner B. Grüning.

The Galaxy team at Freiburg put the new **useGalaxy.eu server** into operation. This occasion was celebrated with the Galaxy User Conference, 15-16 March 2018, at the University of Freiburg welcoming around 120 scientists from all over the world.

The short reviews reflect the de.NBI Winter School on *Computational Metabolomics* in Lutherstadt Wittenberg and the first training days on *Eukaryote Genome Annotation*, *Genome-Wide Association Studies (GWAS)* and *Phylogenetic Reconstruction* have been conducted by our associated partners at Kiel University.

The de.NBI office staff presented the de.NBI at the VAAM-Jahrestagung 2018 in Wolfsburg to the German microbiology community and at the Deutsche Biotechnologietage 2018 to the bioeconomy community.

The next event of interest for the de.NBI community is the **ELIXIR All Hands meeting**, which takes place in Berlin from 4-7 June 2018. de.NBI strongly supports this event. A. Pühler, de.NBI coordinator (Bielefeld University), will open the conference. Peer Bork (EMBL Heidelberg) has been invited for a keynote lecture and Johannes Mohr (BMBF, Berlin) will give the closing remarks.

Aspects of the de.NBI future following the end of the current funding phase in 2020 will be discussed at a **de.NBI retreat** on 12 July in Freiburg.

It is encouraging to note that the efforts of publishing the de.NBI special issue are starting to pay off reflecting download and citation numbers. Finally, a schedule of upcoming events and a list of training courses round off this newsletter hoping to provide again useful information to our community.



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Further information at: <http://www.denbi.de/>

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## ELIXIR USE CASES PRESENTED AT THE CeBiTec SYMPOSIUM IN BIELEFELD

So far, the de.NBI network organized the two international de.NBI Symposia in 2016 and 2017. This year, the CCU has decided to engage in already existing symposia by organizing sessions of high relevance for de.NBI.

As integral part of the **12<sup>th</sup> CeBiTec Symposium 'Big Data in Medicine and Biotechnology'**, 19 – 21 March 2018 at Bielefeld University, the second day of the Symposium was dedicated to the de.NBI and focused on 12 ELIXIR Use Cases, which are listed in adjacent table.

**ELIXIR Use Cases** coordinate activities and resources in specific domains of life science. They bring together experts to develop specialized standards, services, workshops and Implementation Studies in these domains. Goals of the Use Cases are to tie together ELIXIR services into effective workflows that support the needs of the life science community, and to test the technologies and solutions developed by ELIXIR Platforms. Following agreement with the Heads of Nodes committee, ELIXIR will continue its four current Use Cases — Marine Metagenomics, Plant Sciences, Rare Diseases and Human Data — and establish three new ones covering Proteomics, Metabolomics and Galaxy. Starting in 2019 with ELIXIR's next Scientific Programme (2019-2023), Use Cases will be referred to as "Communities". This will avoid ambiguity with the more established meaning of 'use case' used in the engineering field. The word 'Community' also better characterizes how ELIXIR coordinates its experts and services for scientists within a particular domain (quoted from <https://www.elixir-europe.org/news/elixir-establish-new-use-cases-proteomics-metabolomics-and-galaxy>).

The Symposium was extremely successful with more than 130 participants listening to the talks of 30 invited speakers, most of them from abroad. It was the first time that organizers of all ELIXIR use cases had the chance to meet in one place and to learn about the other ongoing European initiatives.

Highlights of the Symposium were the opening lecture by O. Kohlbacher entitled 'From Big Data to Individual Treatments' and the shared distinguished lecture by E. Winkler and K. Cornelius on the topic 'Ethical and Legal Aspects of Collecting and Processing Medical Big Data'. This topic gained even more importance in the light of the new GDPR (General Data Protection Regulations) set into effect by the EU on 25 May 2018.

Further information on ELIXIR use cases and communities at: <https://www.elixir-europe.org/use-cases>

### The 12 ELIXIR Use Cases/Communities

#### Continued Use Cases

- **Human Genomics and Translational Data**
- **Rare Disease Community**
- **Crop and Forest Plants**
- **Marine Metagenomics**

#### Newly established Communities

- **Proteomics**
- **Metabolomics**
- **Galaxy**

#### Communities under discussion

- **Food and Nutrition Community**
- **Human Cell Atlas**
- **Human Copy Number Variation**
- **Intrinsically Disordered Proteins**
- **Microbial Biotechnology**

## RBC FREIBURG OFFICIALLY LAUNCHED useGalaxy.eu SERVER



The **new useGalaxy.eu server** (<https://usegalaxy.eu>) was officially brought into operation during the **Galaxy User Conference** (15-16 March 2018) at the University of Freiburg. Galaxy is an open source platform enabling the analysis of big data for life sciences and transparent computational research. It is available for use by scientists via a user-friendly, web-based interface and users can easily configure and run tools without the need to write code. Users can extract, share and publish analyses via interactive, web-based documents that can enhance analyses with user-supplied annotation. After being initiated at Penn State University in the USA, Galaxy was further extended at the University of Freiburg, as part of the CRC992 for Medical Epigenetics and as part of the German Network for Bioinformatics Infrastructure – de.NBI. The new Europe server is situated in the computer center of the University of Freiburg and continues to run as a community project. The project is in the responsibility of the **Galaxy team at Freiburg** (<https://usegalaxy.eu/freiburg>) headed by Björn Grüning from the workgroup of Rolf Backofen at the Institute of Computer Science. The Freiburg Galaxy team regularly holds training courses for users, administrators and developers, and is developing FAIR training material for this purpose (<http://training.galaxyproject.org>). More than 120 scientists from Europe, Australia and the United States participated in the first Galaxy User Conference in Freiburg. The first day covered ten talks about diverse topics related to the use of Galaxy, such as epigenetics, metabolomics and genome annotation. John Hancock (ELIXIR, UK) and Frederik Coppens (ELIXIR-BE) presented ELIXIR Europe and the recently established **Galaxy Community of ELIXIR**. The Galaxy Working Group aims to build a network within ELIXIR and Europe of Galaxy administrators, developers and users. At the end, Simon Gladman (Melbourne Bioinformatics, Australia) and Björn Grüning (RBC Freiburg) officially launched the useGalaxy.eu and UseGalaxy.org.au servers, followed by dinner and beer at the local brewery Martin's Bräu. The second day covered 13 talks, ranging from gene discovery, mass spectrometry and imaging to miRNA-mRNA regulatory networks and RNA-seq. After this successful event, the

Freiburg Galaxy team is already excited to host the Galaxy Community Conference (GCC) 2019 and invites everyone to visit the city of Freiburg. (by B. Grüning and A. Erxleben)



Impressions from the Galaxy User Conference (Photos: B. Batut)

Further information at <https://usegalaxy-eu.github.io/posts/2018/03/15/y-galaxy-user-conference-a-successful-first-day/>

## de.NBI WINTER SCHOOL 2018 “COMPUTATIONAL METABOLOMICS” – A REVIEW

The first de.NBI Winter School on “Computational Metabolomics” (5–8 March 2018) took place at the Leucorea in the snowy Lutherstadt Wittenberg. The training event was organized by the Center for Integrative Bioinformatics (CIBI) led by the partner project at IPB Halle “Metabolite Annotation and Sharing” (MASH, Stefan Neumann) and the de.NBI-associated partner at Jena University (Christoph Steinbeck). During the training course, 29 participants were instructed in the usage of different metabolomics tools (OpenMS, Galaxy, MetFrag etc.) and gained understanding of the possibilities and limitations of bioinformatics software for metabolome data analysis. The course covered different interesting lectures and hands-on sessions by de.NBI speakers and renowned European experts in the field, e.g. Etienne Thévenot (CEA, F), Pablo Moreno (EMBL-EBI, UK) and Egon Willighagen (Maastricht University, NL).



Attendants of the de.NBI Winter School in Wittenberg in the snow.

de.NBI will follow up its successful training program with the Summer School “Riding the Data Life Cycle”, 3–7 September 2018 in Braunschweig.

Further information at: <http://www.ipb-halle.de/oeffentlichkeit/aktuelles/artikel-detail/rueckblick-auf-die-denbi-winterschule/>

## de.NBI @ CONFERENCES

The network has been presented at various big national conferences in the first semester 2018.

### de.NBI at the Annual Conference 2018 of the Association for General and Applied Microbiology (VAAM) in Wolfsburg



A variety of internationally well distinguished speakers presented exciting topics including natural products, fungal biology and biotechnology, biodiversity, host-pathogen interaction, systems biology and microbial economy at the VAAM conference in Wolfsburg from 15 -18 April 2018. Beside the extensive program and the VAAM Career Symposium for young scientists, where professionals from different areas discussed their career pathways, the organizing committee introduced ePoster sessions, a new format to present scientific results. More than 1,000 participants attended this highly attractive conference this year. The de.NBI administration office participated for the second time in the VAAM Annual Meeting and presented the general network poster. During her poster session, I. Maus answered questions of ~30 scientists on the de.NBI services and training courses.

Further information: <http://www.vaam-kongress.de/>

## de.NBI at Deutsche Biotechnologietage 2018, Berlin

The German Biotech Days (DBT 2018) took place on 18 and 19 April in Berlin. The conference represents a forum for all stakeholders in Germany's biotech scene to exchange their views and experiences. About 1,000 representatives from the worlds of business, science and government, including partners from funding institutions and public administration participated at the leading networking platform for the German biotech industry. The de.NBI coordinator, Alfred Pühler, presented an overview on the network's activities, services and training. At the de.NBI booth, questions concerning de.NBI and the de.NBI Cloud were answered by de.NBI staff Peter Belmann, Daniel Wibberg (CAU), Jordi Pujol and Chris Lawrence (HD-HuB).

Further information at: <https://www.biotechnologietage.de/>



## TRAINING BY ASSOCIATED de.NBI PARTNERS IN KIEL



The new Zentrum für Molekulare Biowissenschaften (ZMB) on the Campus of the CAU.

March 2018 saw the first de.NBI training courses of the associated partners Marc Höppner and David Ellinghaus at the Christian-Albrechts-Universität zu Kiel (CAU). Two courses introduced 22 participants into the topics "**Eukaryote Genome Annotation**" and "**Genome-Wide Association Studies (GWAS)**". Specifically, the courses were focused on core concepts behind those analyses and taught the best practices, e.g. how to improve the training set for the gene prediction tool AUGUSTUS or how to perform GWAS quality control across several batches. The associated de.NBI partners in Kiel followed up with a training course on **Phylogenetic Reconstruction** organized by Tal Dagan on 16 May 2018.

## ELIXIR ALL HANDS MEETING 2018 IN BERLIN

The fourth **ELIXIR All Hands meeting** will take place **4-7 June 2018** at Hotel Berlin, Berlin in Berlin-Mitte, bringing together ~ 300 members of the ELIXIR community from across the 21 ELIXIR Nodes as well as observers from partner organizations. The conference programme has been completed now with keynotes to be held by Ellen McDonagh, Genomics England, and Peer Bork, EMBL Heidelberg. The first day serves as the annual general meeting for the EXCELERATE project. Days two and three constitute the core All Hands meeting focusing on the reports of the platforms and Use Cases amended with flash talks on the full breadth of ELIXIR activities. The afternoon of the third day and the fourth day feature parallel workshops. The topics are Using Clouds, VMs and Containers in Training, GA4GH Compatible Cloud, New Communities, Bioschemas, Biocontainers, CWL, Variations, Access to ontologies, as well as Beacon, Galaxy, and How to make training FAIR. de.NBI staff support the organization of the meeting.

Further information at: <https://www.elixir-europe.org/events/elixir-all-hands-2018>

## ANNOUNCING THE de.NBI RETREAT IN FREIBURG ON 12 JULY 2018

The first **retreat of the de.NBI network** will take place in Freiburg in the afternoon of 12 July 2018 from 2 pm to 7 pm. This retreat shall offer the opportunity to extensively discuss questions connected to the **future development** of the de.NBI network. In particular, the continuation of the bioinformatics infrastructure in Germany will be on the agenda. It is planned to present a **sustainability concept**, which favors the integration of de.NBI into a Leibniz Institute preceded by a two year elongation period of the de.NBI project. In addition, the retreat will also be used to discuss new developments in the second phase of the de.NBI project. It is expected that the CCU members and the leaders of Service Centers and SIGs will participate in the de.NBI retreat. In addition, all PIs of the de.NBI projects are invited to participate.

## RECEPTION OF THE de.NBI SPECIAL ISSUE BY THE SCIENTIFIC COMMUNITY

Half a year after publication of the **de.NBI-Special Issue 'Bioinformatics Solutions for Big Data Analysis in Life Sciences presented by the German Network for Bioinformatics Infrastructure'** (JOURNAL OF BIOTECHNOLOGY 2017, Volume 261), it is time to investigate how the articles have been noticed by the scientific community. On the journal web page, Elsevier regularly provides a list of most downloaded articles from JOURNAL OF BIOTECHNOLOGY in the preceding 90 days. It is a big success that out of 25 most downloaded articles in the list of April 2018, nine papers were from the de.NBI Special Issue!

A more detailed look at the article metrics of the various de.NBI Special Issue papers revealed that the total number of downloads/readers was already above 1,000, with an average of 40 downloads/readers per article. Regarding the citation frequency, 17 papers have already been cited up to three times each. This indicates that the articles of the de.NBI Special Issue describing the scientific background of de.NBI tools are widely recognized by the scientific community and may help to broaden the user spectrum of de.NBI tools.



27 de.NBI  
articles

>1000  
downloads  
until  
03/2018

>27  
citations

Articles are available at: <https://www.sciencedirect.com/journal/journal-of-biotechnology/vol/261>

## NEWS FROM THE de.NBI OFFICE

The de.NBI administration office welcomes their new member Rabeaa Alkhateeb, who has joined the team in May and takes over the Service coordination and monitoring tasks. Rabeaa has obtained her doctoral degree in 2017 from Bielefeld University and worked during her PhD thesis on the bioinformatic and molecular analysis of bacterial transcriptomics data generated by NGS sequencing.



## UPCOMING EVENTS

The calendar lists the de.NBI training courses in second and third quarters 2018. All offers are accessible via the de.NBI home page (<http://www.denbi.de/training>). A number of training events are in the pipeline but not yet scheduled. Please consult the de.NBI training program for the actual dates.

### Major de.NBI events – Save the Dates

-  **ELIXIR Innovation and SME Forum "Data-driven Biotechnology, 15–16 October 2018, in Frankfurt** shall provide companies with the opportunity of learning more about the emerging ELIXIR and de.NBI services and forge strong links with the German ELIXIR Node representatives running these services. The event is jointly organized by ELIXIR, de.NBI and DECHEMA. The event's scientific program will include keynote talks, meet-the-expert sessions and technical seminars about ELIXIR and de.NBI resources and projects. **General information at:** <https://www.elixir-europe.org/industry/supporting-industry-users>. Registration is intended to open in July.
-  **de.NBI retreat on 12 July 2018 in Freiburg** constitutes a general meeting of de.NBI PIs to discuss the future perspectives of the network.
-  **de.NBI SAB Meeting** with Workshop and Plenary Meeting 2018, **29-30 November 2018 in Berlin**.



### Overview of upcoming de.NBI events



Date	Event	City	Organizer
 21-23 May 2018	<a href="#">Workshop for Galaxy training material and skills improvement</a>	Norwich	RBC
 23-25 May 2018	<a href="#">Computational Genomics: Bisulfite-seq analysis and data integration</a>	Berlin	RBC
 28-29 May 2018	<a href="#">Data Carpentry</a>	Dublin	HD-HuB, RBC

Date	Event	City	Organizer
04-08 Jun 2018	<a href="#">DAIS Learnathon 2018</a>	Dresden	CIBI/DAIS
11-13 Jun 2018	<a href="#">Machine Learning in R / mlR Workshop</a>	Heidelberg	HD-HuB
13 Jun 2018	<a href="#">FAIR Data Management for Plant Genomics &amp; Phenomics: Standards, Tools and Infrastructures - IB 2018</a>	Harpenden	GCBN
26-27 Jun 2018	<a href="#">Introduction to Linux Command Line &amp; Basic Scripting</a>	Heidelberg	HD-HuB
27-29 Jun 2018	<a href="#">A primer for RNA-Seq processing, interpreting and visualization</a>	Jena	RBC/de.STAIR
04 Jul 2018	<a href="#">How to share FAIR — The FAIRDOM Data and Model Management Practice – SBMC 2018</a>	Bremen	de.NBI-SysBio
08-13 Jul 2018	<a href="#">CSAMA 2018 - Statistical Data Analysis for Genome Scale Biology</a>	Bressanone-Brixen	HD-HuB
13 Jul 2018	15. CCU-Meeting	Freiburg	CAU, RBC
17 Aug 2018	GTN collaboration fest on metagenomics (online)	Online	
03-07 Sep 2018	<a href="#">de.NBI Summer School 2018 „Riding the Data Life Cycle</a>	Braunschweig	BioData, GCBN, de.NBI-Sysbio
08 Sep 2018	Computational Mass Spectrometry with OpenMS - From Algorithms to Integrated Workflows - ECCB 2018	Athen	CIBI
09 Sep 2018	From an application to a fully integrated workflow – Comprehensive software engineering with SeqAn - ECCB 2018	Athen	CIBI
17-21 Sep 2018	6th Galaxy HTS data analysis workshop	Freiburg	RBC
19-21 Sep 2018	<a href="#">de.NBI - CeBiTec Nanopore Best Practice Workshop 2018</a>	Bielefeld	BiGi, GCBN
15-18 Oct 2018	Software Carpentry Course	Heidelberg	ELIXIR, HD-HuB
23 Oct 2018	16. CCU-Meeting	Tübingen	CAU, CIBI
28 Oct-01 Nov 2018	Combine Tutorial – ICSB 2018	Lyon	de.NBI-SysBio
11 Nov 2018	Omics data analysis with R for Beginners – Lipidomics-forum 2018	Dortmund	BioInfra.Prot
13 Nov 2018	Polyomics data integration and analysis	Bielefeld	BiGi
22-23 Nov 2018	European Galaxy Developer Workshop 2018	Freiburg	RBC, ELIXIR
29-30 Nov 2018	de.NBI SAB meeting incl. Workshop and Plenary Meeting	Berlin	CAU

Further information at: <http://www.denbi.de/training>

## IMPRESSUM

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For questions and remarks please address [contact@denbi.de](mailto:contact@denbi.de)

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