

Om oppstarten av nye hub/noder i 2019-20

Fagråd for eInfrastruktur tildelte eInfrastrukturmidler til 4 nye hub/noder på møtet 26. august 2020. Fagrådet ønsker en status om oppstart og virksomhet i disse hub/nodene pr 2. tertial 2020 og ber om at svar på spørsmålene nedenfor sendes pr e-post **til einfrastruktur-sekretariat@uio.no** innen **14. september 2020**.

Ordningen med eInfrastrukturmidler skal evalueres i 2020. Fagrådet har startet arbeidet med en egenevaluering der status og erfaringer fra hub/node-virksomheten i 2017-20 vil inngå.

Hub/node:	Immunohub
Hub/node-leder:	Victor Greiff, Geir Kjetil Sandve
Vertsorganisasjon	Department of Immunology (IMMI, Faculty of Medicine)
Nettside:	http://immunohub01.hpc.uio.no:8080/

1. Hva er tildelte midler brukt til?

Angi hvordan midlene tildelt i perioden 2019-20 er brukt. Oppgi eventuell egenfinansiering.

Formål	2019	2020
Lønn, frikjøp	kr	824.000 kr
Anskaffelser, investeringer	200.000kr	340.000 kr
Kompetanseutvikling	kr	0 kr
Andre kostnader	kr	0 kr
SUM	kr	kr
Tildeling fra fagrådet	200.000 kr	1.110.000 kr
Egenfinansiering	kr	kr

Explanation of budget calculations: immunohub server: 540 KNOK. To cover these costs, we used all 200KNOK planned for 2019 and used all costs planned under Kompetanseutvikling and Andre utgifter. This sums to 500 KNOK. As for the remaining 40KNOK, we have set up that both USIT and ELIXIR have each been using 20KNOK less than originally stipulated. As there was a delay in receiving the server hardware (supply delays related to the COVID-19 pandemic), the development work started up for full from March 2020. In general, we assumed 2020 referred to the period jan-sep this year, and thus multiplied the original amount with 9/12 before subtracting the 20KNOK.

2. Hva slags nettverk er bygd opp?

Redegjør for hvilke noder som inngår i hub/noden, om det har vært samarbeid med andre hub/noder og om IT-organisasjonen sentralt og lokalt eller andre har vært involvert i virksomheten hittil.

2.1. Oversikt over nodene

The immunoHUB node has been operational since February 2020. So far three departments: IFI, MI, IMMI have been involved in the usage of immunoHUB.

2.2. Samarbeid med andre hub/noder

Given the very specific aims for the ImmunoHub node, we did not plan for and have not had collaboration with other eInfrastruktur-nodes.

2.3. Involvering av IT-organisasjonen sentralt (USIT) og lokalt

USIT procured, installed and configured the physical server that ImmunoHub relies on for offering its functionality to users. USIT has also set up the user interface platform that the functionality of ImmunoHub is available through (Galaxy) according to a standardized setup for such platforms that USIT has previously developed and refined as part of their work with ImmunoHub.

2.4. Andre involverte i hub/noden

We have had tight interaction with USIT, ELIXIR and Senter for Bioinformatikk throughout the whole period. ELIXIR have complemented USIT in terms of developing biologist-friendly user interfaces for functionality we have offered through ImmunoHub, as well as discussing closely with USIT on various technical solutions.

3. Hvilke resultater er skapt?

Beskriv hvilke resultater i form av kompetansebygging, eInfrastrukturressurser og -tjenester, tekniske løsninger, møteplasser og samarbeidsarenaer med mer som er utviklet i regi av hub/noden i 2017-19

3.1. Kompetanseutvikling

As we have currently been in a testing and establishment phase of ImmunoHub, competence development has mostly been on the development side, as well as with pilot users that have tried out the system in early testing. The work on ImmunoHub has spurred a good collaboration between USIT and ELIXIR that has led to exchange of competence between these organizations. Also, developers

have learnt from the pilot users about functionality and user interaction needs of intended users, while pilot users have increased their awareness of development processes.

3.2. eInfrastrukturressurser og -tjenester etablert

We have with the help of USIT and ELIXIR successfully set up a user-friendly platform (a Galaxy instance) to offer functionality for processing and analyzing immunology datasets. We have currently implemented the following tools as Galaxy tools: immuneML (a machine learning platform for immune receptor analysis), MiXCR (gene annotation immune receptor sequencing data), IGOR/OLGA (Bayesian analysis of immune receptor repertoire data), VDJdb and iReceptor (interface to publicly available immune receptor databases).

3.3. Møteplasser, samarbeidsarenaer

As we have currently been in a testing and establishment phase, collaboration and discussion arenas have mostly been for the developers (as well as connecting to the pilot users).

3.4. Annet

4. Hvilken effekt har resultatene av hub/nodens virksomhet hatt?

Beskriv kort hvilke effekter virksomheten har hatt for forskere og forskningsgrupper og for forskningen ved universitetet.

Given that immunoHUB was only established in February, we are still in the testing and establishing phase. We expect to open up to the public usage towards the end of the year. That said, even in the testing phase, immunoHUB has for our pilot users been a great support in handling complicated and large-scale computations for several ongoing manuscripts on (i) a platform for immune receptor machine learning, (ii) antibody binding prediction and (iii) simulation of immune receptor data for benchmarking machine learning approaches and (iv) Bayesian inference of immune receptor statistics. A subset of these projects are COVID-research relevant.

5. Hva er de viktigste lærdommene og erfaringene fra arbeidet hittil?

Med henblikk på framtidig utvikling av hub/node-virksomheten, beskriv kort hva som er de viktigste lærdommene og erfaringene – positive såvel som negative – å ta med seg fra hub/nodens første år.

So far experience has been very positive. Having a powerful machine that performs very specialized tasks is extremely useful to accelerate ongoing research in this area. Furthermore, having technical

USIT and ELIXIR support has exponentially increased productivity. Once we open immunoHUB up to the public, we will be able to relay our experience in usage of other groups.