The national board of Science for Life Laboratory

Minutes from board meeting no 43, 4 May 2020 (per capsulam)

Present members

Carl-Henrik Heldin (UU)(chair), Fredrik Elinder (LiU), Anders Gustafsson (KI), Anders Karlhede (SU), Göran Landberg (GU), Lotta Ljungqvist (Cytiva), Katrine Riklund (UmU), Stellan Sandler (UU), Mathias Uhlén (KTH)

1. Open SciLifeLab COVID-19 call – with KAW funding

VC-2019-0011, V-2020-0250

Knut and Alice Wallenberg Foundation (KAW) has granted Science for Life Laboratory a total of 70 MSEK for research related to COVID-19 infections. Of this, 50 MSEK was allocated to research on the development of methods and analyses for large-scale testing of COVID-19 infections (KAW 2020.0182) and 20 MSEK was allocated to support COVID-19 related projects (KAW 2020.0185).

The open call for SciLifeLab COVID-19 proposals was rapidly started to harness expertise and interest on this topic across the country. The call was opened on March 25 and 285 applications were sent in when it closed on March 30.

The management group has considered the applications one at-a-time by individually grading and jointly evaluating the proposals. Besides scientific impact, the evaluation criteria considered were relevance and impact on tackling COVID-19 pandemic, opportunities created by the SciLifeLab community, possibility to form synergies and collaborations, commitment to open data and real-time updates of progress.

1a. Open SciLifeLab COVID-19 call - phase 1

In phase 1 the SciLifeLab management group recommended funding of 11 projects (11 MSEK) focused on virus- and immunodiagnostics for COVID-19. To get the first projects started quickly as expected by KAW, the SciLifeLab Director made a decision regarding funding of the selected initiatives in consultation with the chair of the board.

Decision:
- The SciLifeLab board approved the Director's decision 2020-04-08 regarding 11 applications funded by the grant from Knut and Alice Wallenberg Foundation, phase 1 (11 MSEK).

1b. Open SciLifeLab COVID-19 call - phase 2

282 applicants agreed to continue from phase 1 and those applications were then classified by topic/research area and within the scope of SciLifeLab. SciLifeLab management group and research experts for the defined topics made a second round of evaluation and selected 10 topics recommended for funding as 56 individual new projects on top of the 11 previously funded (according to appendix 1). Importantly, there is an opportunity and an aim that the funded projects could form synergies and team science collaborations within and across each of the topics.

Decision:
- The SciLifeLab board approved the 56 applications with the grant from the KAW (About 39 MSEK, according to appendix 1).

2. Plan for the use of national funding to support creation of collaborative research capabilities linked to the SciLifeLab infrastructure

VC-2020-0011

The support from Knut and Alice Wallenberg Foundation is to be used to fund 67 grants out of 285 applications in the SciLifeLab COVID-19 call. Many of these projects could collaborate i) with each other across the country, ii) make use of existing SciLifeLab infrastructure services or iii) could help to develop new research capabilities linked to the SciLifeLab research infrastructure. To promote the creation of these research capabilities, national funding support is suggested to selected SciLifeLab infrastructure platforms.

The SciLifeLab board decided, at its meeting no 42, to allocate up to 12 MSEK of national SciLifeLab funds to the open SciLifeLab COVID-19 call and to decide the final distribution of funds to recipients based on a per capsulam decision after the evaluation of project proposals was finished.

Decision:
- The SciLifeLab board approved that up to 12 MSEK of national funding is allocated to support SciLifeLab infrastructure to coordinate and collaborate with the KAW funded research projects to create national COVID-19 research capabilities (appendix 2)

- The decisions will be made as director's decisions, supported by MG in consultation with the chair of the board, and will be reported to the board in each meeting over the course of 2020.

Minutes approved by:

Anna Höglund Rehn, secretary	Carl-Henrik Heldin, chair

Appendix 1. List of approved projects

Topic	First name	Last name	Affiliation	Project title	Suggested funding (tSEK)	Comment
Biobanks for Covid-19 research	Michael	Hultström	UU	Uppsala COVID-19 ICU Biobank	1000	
	Magnus	Gisslen	GU	Building Capacity – the Sahlgrenska Covid-19 Biobank	1700	
	Clas	Ahlm	Umu	COVID-UMU: Sample collection and understanding the transition from mild to severe COVID-19.	970	
	Åsa	Torinsson Naluai	GU	Assessment of SARS-CoV-2 specific antibodies in adults, and building a repository of samples from seroconverted asymptomatic adults	984	
	Martin	Sundqvist	ÖU	The spread of SARS-CoV-2 monitored by the serum samples routinely obtained through maternal screening and blood donor screening	300	
	Charlotte	Thålin	KI	The COMMUNITY Study- COVID-19 Biomarker and Immunity Study	1230	
	Patrik	Medstrand	LU	Establishing a biobank of clinical specimens for studying evolution of viral diversity and development of immune respones, including inflammation, seroprevalence and protective antibodies, in SARS-Cov2 infection	1000	
	Toralph	Ruge	LU	A biomarker-based approach to rapidly identify COVID-19 patients at high risk of severe disease and mortality at 3 emergency departments in Region Skåne	500	
Development of diagnostics for virus	Björn	Högberg	KI	Simple and cheap remote test for infection based on HCR	300	
	Masood	Kamali-Moghaddam	UU	COVID-19 screening test design	635	
	Björn	Reinius	KI	Extraction-free high-sensitive RT assay for SARS-CoV-2 RNA detection	482*	Phase I
	Vicent	Pelechano	KI	iLACO-Sweden	500*	Phase I
	Mats	Nilsson	SU	RCA-COVID-DIA	338*	Phase I
Viral genome evolution	Nicola	Crosetto	KI	COVseq – Developing COVseq for mass-scale SARS-CoV-2 sequencing	500	
	Arne	Elofsson	SU	A community resource for SARS-CoV-2 structure, interactome and evolution.	200	
	Lars	Feuk	UU	Rapid cDNA and direct RNA sequencing of SARS-CoV-2 using Oxford Nanopore	500	
	Tomas	Nyman	KI	Analysis of essential genes and validity as drug targets	500	
High-throughput and high-content serology	Fredrik	Sterky	GU	Optimized expression of the SARS-Cov-2 Spike protein in mammalian cells for serology testing and functional studies	400	
	Juni	Andréll	SU	Production of SARS-CoV-2 surface proteins in HEK293 cells	400	
	Gunilla	Enblad	UU	Biological investigations of Covid-19 in cancer patients	700	
	Ulf	Göransson	UU	Peptides for serological test of COVID-19 antibodies and as molecular tools	250	
	Anne	Lindberg	Umu	Seroprevalence and predictors of COVID-19 disease severity in two areas of Sweden	500	
	Kenta	Okamoto	UU	Large-scale production of a bio-safe antigen of COVID-19 and chimeric bat coronaviruses	500	
	Jan-Åke	Liljeqvist	GU	Rapid development of novel antibody assays diagnosing Covid-19	1000*	Phase I
	Jochen	Schwenk	KTH	Translational serology for a population-wide assessment of Covid19 immunity	700*	Phase I
	Pontus	Nordenfelt	LU	Neutralizing human B-cell derived monoclonal antibodies to SARS-CoV-2	1000*	Phase I
	Karin	Loré	KI	Characterization of the B cell response during SARS-CoV-2 infection	1500*	Phase I
	Ulf	Landegren	UU	PLA-based large-scale analysis of Corona virus immunity	508*	Phase I
	Åke	Lundkvist	UU	SICoV - Serological Investigations on SARS-CoV-2 and other coronaviruses - improved diagnostics and knowledge	1731*	Phase I
	Mats	Ohlin	LU	Human antibodies against the SARS-CoV-2 spike protein	754*	Phase I
	Sophia	Hober	KTH	Multiplex analysis of immune response against Covid-19	2000*	Phase I
Biomarkers and systems immunology	Jacob	Odeberg	KTH	Identification of plasma biomarkers for risk stratification of hospitalised Covid-19 patients	750	
	Lars-Magnus	Andersson	GU	Prediction of severe disease in Covid-19	1300	
	Marie	Larsson	LiU	Taking back the control of the SARS-CoV2 antiviral immune response as a mean to neutralize the COVID19 disease pathogenicity	1676	
	Petter	Brodin	KI	Systems immunology analyses of the cytokine storm in COVID-19	1200	
	Patrik	Medstrand	LU	Establishing a biobank of clinical specimens for studying evolution of viral diversity and development of immune respones, including inflammation, seroprevalence and protective antibodies, in SARS-Cov2 infection	200	
	Davide	Angeletti	GU	Dynamics and longevity of the specific adaptive immune response in COVID-19 patients	1500	
Host cell systems biology and targets	Anna	Överby Wernstedt	UmU	Functional characterization of Covid19-host response using single-cell transcriptomics and CRISPR screens	700	
	Jonas	Klingström	KI	Immediate molecular response to SARS-CoV-2 infection	600	
	Ylva	Ivarsson	UU	Mapping SARS-CoV-2 host-pathogen interactions for drug repurposing	500	
	Maria	Pernemalm	KI	Viral-host interaction of SARS-CoV-2 protein corona	400	
	Claudia	Fredolini	KTH	Profiling of host proteins associated to the envelope of SARS-CoV-2	550	
	Oscar	Fernandez-Capetillo	KI	Genetic screens to identify novel determinants of SARS-CoV-2 infection	250	
	Leo	Hanke	KI	CoronaCETSA	500	
	Oscar	Fernandez-Capetillo	KI	Identification of host factors targeted by coronaviruses by Thermal proteome profiling	300	
	Erdinc	Sezgin	KI	High throughput imaging platform	500	
	Darcy	Wagner	LU	Human precision cut lung slices as an ex vivo model for studying SARS-CoV2 infection and identifying potential therapies	300	
	Claudia	Kutter	KI	Cas13-CoV	650	
Drug discovery and repurposing of drugs	Kristian	Sandberg	UU	NEVERMORE COVID – Establishing a drug discovery platform for corona virus disease	1500	
	Anna-Lena	Gustavsson	KI	A high-quality drug repurposing set	2000	
	Ola	Spjuth	UU	Multi-level profiling of Coronavirus-infected cells by combining Viral Entry Assays, Cell Painting, and DrugSEQ	500	
	Charlotte	Stadler	KTH	Spatial single cell mapping of SARS-CoV-2 interacting host proteins for quick and targeted drug repurposing	1000	
	Göran	Karlsson	GU	FragCor	450	
	Sara	Mangsbo	UU	An adaptable therapeutic technology platform to treat SARS-CoV infections in immune suppressed individuals	1500	
	Kristina	Nyström	GU	Rapid testing for treatment of Covid-19	300	
Data-driven research/drug discovery	Jens	Carlsson	UU	FRAGMENT2DRUG	621	
	Anders	Bäcklund	UU	Chemographic characterization of compounds binding to seven identified molecular targets from SARS-CoV-2	140	
	Lucie	Delemotte	KTH	Distributed computing to generate the druggable conformational ensemble of sars-cov-2 proteins	685	
Data-driven research: models and AI	Gunnar	Cedersund	LiU	A multi-level digital twin framework for Covid-19: from mechanisms of disease ethiology, to clinical decision-support and epidemiology	800	
	Emma	Lundberg	KTH	Building a platform with AI models, datasets and web applications for fighting COVID-19	800	
	Sonja	Aits	LU	Artificial intelligence-based knowledge curation to direct COVID-19 research and public health efforts	700	
	Emma	Larsson	KI	COVID-19 – a population-based project of ICU patients	376	Projects to be
	Jonathan	Grip	KI	Characterization of ICU treated COVID patients in Sweden	170	combined
Environmental virus profiling	Zeynep	Cetecioglu Gurol	KTH	SARS-CoV-2 in sewage water as a tool for monitoring the potential circulation of the viruses in the population and rate of infections (SARS-CoV-2@WWTP)	1000	
	Maja	Malmberg	SLU	Sewage as a proxy for SARS-CoV2 prevalence	500	
	Anna J.	Székely	UU	Detection, monitoring and genetic evaluation of SARS-CoV2 in wastewater treatment plants	500	
	Klas	Udekwu	SU	Surface persistence and SARS-CoV-2 exposure in the Stockholm Subway	1000	

***Funded in Phase I**

Phase II	**39487**
Phase I	**10513**
Total	**50000**

SciLifeLab

Appendix 2. Tentative allocation of support to SciLifeLab infrastructure for the COVID-19 call (also the university affiliations indicated are preliminary, but quite likely primary sources).

The template is provided as a guidance of funding, but this will require continuous prioritization and adaptation to emerging needs and research progress.

3 MSEK Data Center (UU)

- Development of a SciLifeLab COVID-19 Data hub (linked to EBI's COVID-19 hub)
- Piping data from all projects and facilities and its integration and FAIRness
- Coordination of the collaborative networks with data-driven proposals in the SciLifeLab-KAW COVID-19 call

3 MSEK Genomics / NGI (SU/UU/KTH)

- Coordination of biobanking initiatives linked to the SciLiufeLab-KAW COVID-19 call
- Setting up viral genome sequencing efforts in collaboration with grantees (UU)
- Coordination of environmental virus profiling initiatives and setup of associated technology and bioinformatics (SU)

3 MSEK DDD/CBGE (UU/KI)

- Coordination and prioritization of COVID-19 drug discovery, drug repositioning and cellular systems biology efforts in Sweden
- Setting up cell models, assays, libraries, imaging and detection technology for chemical biology and drug repositioning screens
- Development of capabilities for testing lead molecules in relevant models in vitro, ex-vivo and in preclinical in-vivo models

3 MSEK Proteomics platform (KTH/KI)

- Support for the expansion of high-throughput serology platform (KTH)
- National/international coordination of serology technologies
- Proteomic profiling of virus-infected cells and patients and setup of systems immunology capabilities (KI)

Up to 12 MSEK total funding allocation, exact numbers to be decided