



# DELIVERABLE 1.1 PROTOCOL KICK-OFF MEETING

WORK PACKAGE NUMBER: 1 WORK PACKAGE TITLE: END USER EXPERIENCE & USER CASE DEMONSTRATION







iReceptor Plus Project Information			
Project full title	Architecture and Tools for the Query of Antibody and T-cell Receptor Sequencing Data Repositories for Enabling Improved Personalized Medicine and Immunotherapy		
Project acronym	iReceptor Plus		
Grant agreement number	825821		
Project coordinator	Prof. Gur Yaari		
Project start date and duration	1 <sup>st</sup> January, 2019, 48 months		
Project website	http://www.ireceptor-plus.com		

Deliverable Information		
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Work package title	End user experience & User Case Demonstration	
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Lead beneficiary	Interteam	
Lead Author(s)	Mr. van Dam, Ms. Ehrman	
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Approvals				
	Name	Organisation	Date	Signature (initials)
Coordinator	Dr. Gur Yaari	Bar Ilan University	28 Feb, 2019	<mark>GY</mark>
WP Leaders	Mr. Tobias Hinz	Ascora	28 Feb, 2019	TH







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# **Kick-off Meeting**

# **Executive Summary**

The Kick-off Meeting, hosted by the Coordinator and the Israeli partner Interteam, took place in Eilat, Israel on January 14-16, 2019. The meeting was attended by all partners and was dedicated to introduction of partners, an overview of the project as well operational planning on the level of Work Packages and tasks focusing on implementation of the first activities of the project. Practical aspects of interaction among Work Packages as well as project administration and reporting clarified requirements and set processes in motion.

A summary report of the KO meeting was shared with the consortium and includes a list of action items, the specific person responsible and due date for each action. Additionally, the General Assembly reached decisions including to confirm the Governance structure as detailed in the DoA, the essence of D10.1. The list of processes adopted by the consortium was detailed and next meetings were planned.

#### **Consortium Processes**

- 1. Timesheets should be kept by all individuals whose time will be charged to the project; each partner consolidates for their team.
- 2. Deliverables should be submitted to the Project Executive one month in advance of due date.
- 3. Dissemination; press/news/blogs should all be sent to the Project Executive one week before release
- 4. Scientific publications/posters should be sent to the Project Executive one month in advance of publication / presentation
- 5. Interviews: Dissemination team will prepare the policy
- 6. Audits: All partners who are required to perform audits must do so in advance of reporting to minimize delays. All partners with direct costs over 325K will be supported as required by Project Management.

# Protocol of Kick-off Meeting

Dates: Jan 14-16, 2019 Venue: Eilat, Israel

#### Participants:

Bar Ilan: Gur Yaari, Pazit Polak, Ayelet Peres, Moriah Gidoni, Estelle Weise SFU: Felix Breden, Brian Corrie, Jamie Scott, Pam Borghardt, Francis Breden Sorbonne: Encarnita Mariotti-Ferrandiz DKFZ: Christian Busse







Leitat: Martina Passarello, Izabel Alfany, Marc Massa INESC TEC: Artur Rocha, Ademar Aguiar Haifa U.: Uri Hershberg Mitmynid: Rui Barros Ascora: Daniel Gilbert, Tobias Hinz MedGenome: Amitabha Chaudhuri Infinidat: Livna Daabul, Reem Hazan 10X: Sarah Taylor UTSW: Lindsay Cowell, Scott Christley APHP: David Klatzman Timelex: Jos Dumortier Interteam: Dan Gertenfeld, Boaz Babai, Simon van Dam, Bracha Ehrman

The Protocol of the iReceptor Plus Kick-off Meeting (KoM) summarises the content of the sessions, details planned action items as well as the decisions reached and next meetings. The agreed consortium processes highlighted as part of the management session are listed above. The KoM agenda follows as an annex to this deliverable.

#### **1. Introduction of Partners**

After Gur welcomed and introduced the consortium each partner described their contribution to iReceptor Plus and the benefits they hoped to receive from participation in the project.

**SFU** (Brian)- looking for an improved iReceptor platform (WP1-4) and integrating the new science from WP5-7. Interested in finding opportunities for AIRR-seq data in hospitals and industry.

**Sorbonne University** (Encarnita) – bring patient immunology data to the project. Integration of transimmunom and TriPoD data into a federated repository and perform comparative analysis with AIRR-seq data.

**DKFZ** (Christian) - expect to embed complementary single cell platforms, tap into downstream analysis workflows developed by the consortium partners, proof of concept of federated system. **Haifa University** (Uri) - Contributes a Systems immunology lab (SIM Lab) with Immune DB, a federated database using visualization tools (tableau as a platform to query AIRR-seq repositories), with 1.5B, sequences 176 unique functional sequences, ~13M clones. They make data usable by available tools while maintaining annotations. Rather than uploading data to EU or NIH databases.

Benefit is to have testers of his tools using his sequences. Wants to learn how to query AIRR API and link gene expression data with historical clonal definitions of B cell repertoires.

**Leitat** (Marc) - Do drug development and compare data between patients having different treatments. They do CDR sequencing and can benefit from the abundance in AIRR-seq data.

**INESC-Tec** (Artur) - bring software solutions for heath research and this project will broaden their scope. Plan to harmonize processes in AIRR community using modular, generic tools for analysis







and reporting. Use F.A.I.R. principles for scientific data management and stewardship – making it findable, accessible, interoperable and reusable.

**Mitmynid** (Chiue) - bring big data analytics and visualization tools. Have experience in business planning and development to generate products and services.

**ASCORA** (Daniel) – provide software for end users of health data, specifically parts of reporting and analysis components, authentication and security solutions for data. Work on business software development.

**MedGenome** (Amit)- Develop biomarkers for personalized cancer immunotherapy. Have access to large patient cohorts. There is a large unmet need in infectious disease in South Asia. Want to identify baseline genomes for Asians, to learn about changes in antibody repertoire during infection and to integrate S. Asian immune receptor data with existing data and develop clinical use cases for the data. Clients are Biopharma. Clients ask questions about the data for testing drugs and understand how repertoire is changing.

**Infinidat** (Reem) - data storage company. Provide infrastructure to store and access huge amounts of data and repository scale up. Solve the problem of data growth so that analysis can be done.

**UT Southwestern** (Scott) - brings VDJ Server, an analysis portal for AIRR-seq data and a data repository. Want to integrate iReceptor Plus queries with VDJ Server.

**10x Genomics** (Sara) - single cell genomics, sell instruments and reagents for sequencing – not services. Modify pipelines so outputs are compliant and can be uploaded directly. Want to establish a 10x repository of data which will be accessible to customers. All data is single cell and multi omics (gene expression data) and can tag proteins to see antigen specificity.

**AP-HP Assistance Publique-Hospitaux de Paris** (Davide) - generate large datasets through 2 major projects. Sequencing TCRs from T cells from healthy donors and patients. Have experience with analysis pipelines and systems immunology.

**Timelex** (Jos) - project lawyer involved in legal issues related to data security and sharing. Produced a report on sharing health data among EU countries – will share this with the consortium. Their benefit would be to extend knowledge in this area. Their challenge is to go beyond health to more stringent rules of genetic data and export data outside of US/Canada/Israel and beyond.

**Interteam** (Dan) - Communication officer. Management of admin and financial issues of the project.

**Bar Ilan** (Gur) - Project coordination; wants to develop analysis tools and produce data and will share these data via an iReceptor Plus node. Benefit is to gain access to new datasets and tools with partners.

Gur presented 4 absent partners

**Oslo University Hospital** (Ludwig Solid) – generate AIRR-seq data- diverse data and focused on celiac disease. Victor Grief brings expertise in computational immunology with interest in AI and machine learning for immune repertoire data.

**Beilinson Hospital** - large hospital in Israel. Part of Davidoff center for Cancer within personalized medicine division. Planning to sequence AIRR-seq data for immunotherapy, biomarkers and cancer treatments. Will contribute data and collaborate on analysis. Will provide case studies.







**University of Toronto** - hospitals have strong academic connections. Produce repertoires and do machine learning. Have worked in biotech companies. Bring phage display and synthetic antibody libraries to iReceptor Plus.

#### 2. Project Objectives, Vision, Mission, presented by Gur Yaari

Gur gave an overview of Adaptive Immune Receptor Repertoire (AIRR-seq data), how it can be used for basic science research (such as biomarkers) and for treatment (e.g. vaccines, immunotherapy), monitoring and early diagnosis of infectious disease, immune/autoimmune disease and cancer (e.g. leukemias and lymphomas), as well as prediction of treatment efficacy. Standards are necessary for data sharing and development of analysis approaches.

AIRR Community is a grass-roots group of immunologists, bio-informaticists, computer experts, iReceptor Plus wants to contribute to AIRR and expand it both scientifically and from a business point of view.

Heart of the project is sharing / using distributed data. The gateway opens a way to share data. iReceptor Plus is the opportunity to make a large impact: we want to scale it up and scale it out – to store larger amounts of data as nodes and in a large repository. Accessibility such that sharing is controlled – which data are shared with whom. Want to have methodologies for different test cases. Business opportunities are exploitable within this shared data.

<u>Action Item</u>: Intellectual property rights (IPR). We need to clarify borders between background and foreground. iReceptor, Immune DB, VDJ Server others?

<u>Action Item</u>: We should set up an external Scientific Advisory Board and Ethics Advisory Board to work with the project. PE will follow up with this.

A Vision Statement created for the project states that iReceptor Plus vision should align with the AIRR Community. A full discussion of this followed on day 2 of the meeting and the statement updated.

#### 3. Scientific Background, presented by Felix Breden

AIRR-seq data is unique and offers revolutionary aspects. In 2007 Jamie Scott and Felix Breden began to curate samples and found need to build way to collect and analyse large data sets for research in the context of HIV vaccine research. Recombination on the somatic chromosomes generates variability and the need for tools to store and analyse this information. Annotation of receptors against germline V, D, and J genes – allows reconstruction of the phylogeny and understanding the mutations since the original germline.

The AIRR community is developing a public database of germline genes for comparison with AIRRseq data. Specialized reference libraries and tools are required for this work. Examples of AIRRseq data differentiating between healthy and malignant disease such as CLL, CTCL. Can use these data to predict responders to immunotherapy and check if disease has returned.







Need biopharma, clinics/hospitals/sequencing companies to describe their needs. iReceptor Plus can revolutionize data sharing in genomics and health. It is the leading edge of federated database development.

#### 4. Technology Goals, presented by Brian Corrie

We want to leave the computational complexity behind a web browser user interface. Foundation of the AIRR community is to make the data FAIR (findable, accessible, interoperable and reusable). The standards make this possible. -What platforms will query the repositories? What can be done with these datasets? How do we leverage all the tools that partners bring along?

How do the algorithms interact with the data? Via the analysis or directly through the AIRR data commons? We need to facilitate use of new data types such as single cell data.

iReceptor Plus technology challenges include providing data for diverse users, making data scalable, secure, able to provide advanced analysis, integrative with other omics/health data and use new sequencing technologies to work better, faster and bigger.

#### 5. Management Structure

Bar Ilan University (BIU) is ultimately responsible for the project. Clarified roles of different bodies, Project Executive (PE), General Assembly (GA), Work Package (WP) Leaders. Tobias Hinz will replace Daniel Gilbert in ASCORA as WP8 Leader.

Each deliverable should have an owner.

Action Item: list to be prepared and confirmed by all owners.

#### 6. Work Packages Presentations

#### WP1 End users and use cases Demonstration (UI/UX) (Brian, SFU)

End-users' requirements should drive UI/UX (user interface and user experience). How do we make it easy to use the platform? It should outlive this project implementation period. Three existing platforms (iReceptor Scientific Gateway, VDJ Server, Immune DB) need to be expanded and integrated. Beta release is due in M24. Development of service and maintenance.

Action Item: During M1-6 establish a use case team and talk to partners and the community about their needs (privacy, security etc.) Realistically, by M6 we will have a list of relevant use cases, prioritize these. Consider this list as a living document to be updated throughout the project. We should avoid duplication. Should decide how to integrate the 3 existing platforms by M6 as well. INESC TEC has experience in this.

#### WP2 Scale up/Scale Out the AIRR Data Commons (Brian, SFU)

How do we focus? Discussed how to make it easy for new repositories to join and for new users to query.

#### WP3 Layered Data Security (Artur, INESC TEC)







Immediately need to balance FAIR principles and GDPR policies (secure by design). Does anonymization exempt us?

D3.1 Holistic Security and Privacy Concept is due in M4. -Use cases are needed to develop a holistic security and privacy concept. We could start with a use case from MedGenome, Beilinson and 10X. -Will submit a concept based on preliminary work on use cases and revise.

# WP4 Analyses pipelines (Scott, UTSW)

Transferring data sizes beyond 10's of GB is not practical as transferring data for analysis to a single computer will overload network capacity. What is the best architecture? We need to optimize resources and balance CPU, bandwidth to estimate the best scenario. - At current state of VDJ Service, there will be a scalability issue with most of the tools. Use languages like python which are not scalable – will have to consider optimization or other solutions.

**Use cases (Felix, SFU):** include research community, industrial partners and clinics/hospitals. We need to understand the needs of each community. Have considered research community business models but not the others yet.

Amit points out that the pharma companies may build their own add-on tools and with them provide services based on the freely available iReceptor Plus platform. If companies have their own genomic data and want to integrate AIRR-seq data- how does this happen? Big pharma will not send their data. How do we help the clinicians use AIRR-seq data as diagnostic/monitoring tools?

Davide: hospitals are now understanding the need to integrate their data. Each country/hospital will have to set up the turn-key system.

Brian: understanding security requirements around these repositories. Amit: all clinical studies must be HIPPA compliant. Compliant and non-compliant data cannot be mixed. GDPR has more stringent guidelines.

# WP10 Project Management (Bracha, Interteam)

Overview of reporting requirements – timesheets needed for all participants charging time to the project (hours per PM (person months) are determined by each organisation); periodic reports for iReceptor Plus are due for periods M18, M30 and M48 (reports due 60 days after each period ends). Templates for all reporting will be on the internal website for easy access.

<u>Action item</u>: All partners are requested to send ppts from KO to Dan so these can be uploaded on the internal website.

The required text for publications is as follows:

"This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 825821. The contents of this document are the sole responsibility of the iReceptor Plus Consortium and can under no circumstances be regarded as reflecting the position of the European Union."

The EU flag should accompany this text









**WP5 Advanced algorithms for mining AIRR-seq repositories** (Gur, BIU) Six projects are funded under the same EC call and all of us share similar challenges. We are invited to link with these, to share best practices and avoid duplication of effort. We should bear in mind the Stochasticity and Control in Adaptive Immune Repertoires (SCAIR) meetings- the next meetings are in Dresden and Israel. This community can be supportive to our work and does not overlap with the AIRR community.

Invites any partners to participate in WP5 – even if no PM have been assigned.

The objective of WP5 is applying machine learning and AI to AIRR-seq data. Specification between cohorts/cells and to develop new algorithms for searching. Examples: HCV and Celiac disease – both showed that AIRR-seq data can show differences in cohorts.

HCV which is highly variable RNA virus. 20-40% of those affected, spontaneously cured. Could AIRR-seq data differentiate between these cohorts using machine learning? Results show that seq-data repertoires could be used as biomarkers. Marc (Leitat): we have expertise and data for HCV.

**WP6** – **Systems Immunology** (Encarnita, Sobonne) The immune system is an integrated system which produces clinical responses to disease – different types of information can be used to better understand the pathology. Immune systems data can complement the iReceptor Plus gateway. Will use data and methods built in the Transimmunom project. Any partner interested in joining is welcome.

eCRFs (clinical report form) collects 850 clinical parameters from patients. Used established open-sourced tools including Open-clinicas and tranSMART. The Clinico-biology and OMICs data integration was done using tranSMART patient-oriented database to record data from patients. Discussed compliance with HIPPA and GDPR of the storage platforms at Infinidat so they can work with the iReceptor Plus data.

<u>Action Item</u>: Reem to check compliance of Infinidat storage platforms with HIPPA and GDPR. Uri: we could feed single cell gene expression metadata into the parameters of the Transimunome repertoire.

Scott: what tools are on your site or do you need external tools for analysis? Encranita: our tools can do basic/classic analysis. Microbiome and others are new and developing tools for these would enrich the tranSMART system. They do not have tools yet for seq data. We can use tranSMART to find correlations or try to implement AIRR-based tools. Davide: tranSMART is user friendly for clinicians. Consider it may be better to develop new tools externally.

**WP7 Single-cell data integration** (DFKZ, Christian) Goal of WP is to include Single Cell AIRR-seq (scAIRR-seq) data to the iR+. Changing epitopes, decoys mimicry are possible reasons that not all immune responses mediate long-term protection. We need to gain understanding of mechanism to allow modeling and prediction. WP5 can benefit from automated classification of populations.







WP2 has to draft of MiAIRR 2.0/AIRR comRepo API by M6. This is done by WP. Can offer XMPP (RT messaging) system. Redmine (project management).

**WP8 Innovation Management, business planning and exploitation** (Daniel, Simon). Open access to the research and business community is important for sustainability. The project is funded as a RIA (research and innovation action) which means we need to show innovation and bring outputs to end users. All partners are invited to participate in this WP. We should connect WP8 with WP1 Use cases –to identify potential clients and business opportunities. From the beginning we can identify a sustainable direction.

**IP discussion**: Jos presented a short overview of IP definitions in the world of EU projects. Usually IP developed within the project is available for use of partners during the project implementation. Consortium needs to be sure no s/w development is stalled due to IP concern.

We need to map existing agreements/licenses within the consortium.

Keep the iR+ git hub private so that people can contribute new code work until this process is clarified.

**Action item**: Map of existing IPR from the GA annex and their associated (existing) agreements. This links with clarifying borders between background and foreground mentioned by Gur on first day. Felix and Pam (SFU) to join this working group.

**WP9 Dissemination, Communication and Visibility** (Dan, Interteam) presented the activities. Publications should be sent to the PE and shared with the consortium to be sure no conflict of interest from publication. Process for publishing press releases should be reviewed by the PE and clarified. The blog page at the website will be dynamic. All partners are requested to contribute by sending in a summary of results/activities other news/pictures of events etc. as relevant. Newsletter will be created – can be shared through the partners and their networks. Internal site will be created for document repository. Will be organized by WP and all partners will receive a user/password to gain access.

Action item: Bracha will send a schedule of blogging so at least one new blog is published per month.

# WP11 Ethics (Gur, Jos)

Gur, Jos, Simon, Bracha, Felix and Pam will comprise this working group. The Ethics Advisory Board will be external to this group and provide guidance/support.

# 7. Working Groups – next steps for WPs

WP1-4: Provide a system for standardizing analysis within the platform. Should create procedures to ensure that the apps are not able to load things up on a North Korean server, for example. WP 1: established a Use Case Team: Brian, Fran, Ascora, INESC, Simon

This team will be reaching out to partners about use case considerations: scientific use case, industrial use case, clinical use case.







WP2: Need Task leaders, People should communicate to Brian - which of the tasks are people willing to be part of. Turnkey development workshops - M3

WP3: Data and processing services, What kind of security and auditing mechanisms are needed? Task allocation: Task 3.3 - Artur, Tobias; Task 3.4, 3.5, 3.6 - Jos

WP4: Task allocation: Task 4.1, 4.2, 4.3 – Scott, 4.4, 4.5 - Brian

How much processing will each site need to do? Infinidat agreed to have a major node for testing.

Felix to facilitate a working group that meets every two weeks to discuss the broad question of analysis using distributed repository model. What is the use case that we are trying to solve with this analysis? Need to understand what people have or intend to put in their databases, how they are storing data and understanding use cases. Build relationships with data repositories.

# Action Items

#	Description	Responsible	Date Due
1	Updated project contact lists (people working on the project team@ireceptorplus.org), list of participants at KOM		done
2	Circulate report on using research health data for research purposes	Jos	Feb 25
3	Develop internal partner site and upload project resources including: project logo, presentation templates and letterhead, contact information, deliverables/milestones map (Encarnita to develop a square version of the logo for social media and share?)	Dan	Feb 25
4	Send ppts from KO to Dan so these can be uploaded on the internal website.	All	Feb 25
5	Blue Jeans collaboration tool for project communication- share with consortium	Christian	Done
8	Each partner should designate a GA representative – send to PE	All/Estelle	Feb 28
9	list of Deliverable owners to be prepared and confirmed by all owners	Bracha	Feb 28
10	Establish a Use Case Team for WP1	Brian	Done
11	Check compliance of Infinidat storage platforms with HIPPA and GDPR	Reem	Feb 28
12	Modify, finalize and get consensus on Vision Statement	Felix	Feb 28
13	Map of existing IPR from the GA annex and their associated agreements/licenses.	Brian	Feb 28
14	Prepare and distribute a blogging schedule	Bracha	Feb 28
15	Create a common ad for attracting people to work on the project	Bracha	Feb 25







# Decisions

- 1. Governance structure as described in the DoA and Consortium Agreement and as presented at the Kick-off is confirmed by all partners. This constitutes Deliverable 10.1.
- 2. Infinidat agreed to have a major node for testing
- 3. Established a Use Case Team: Brian, Fran, Ascora, INESC TEC, Simon
- 4. Established Ethics working group: Gur, Jos, Simon, Bracha, Felix and Pam
- 5. WP2 is planning a Turnkey development workshop in M3 (March 2019)
- 6. **Next GA meeting** should be in April, May or June 2020 either in Portugal or Vancouver Will review milestones and plan for M18 reporting (due end of M20)
- 7. AIRR Community meeting, May 16-17, 2019, Genoa.
  - a. Scott offered to do a training session for Tool Development at the May technical meeting
  - b. SFU can organise the technical and scientific sessions; focus on Use Cases.
  - c. Pam can organise local facilities with AIRRC local organisers once budget is understood
- 8. Other conferences to consider:
  - a. scAIR- May 25-29, 2020, Dresden
  - b. AAI- American Association of Immunology May 8-12, 2020, Honolulu







# iReceptor Plus Kick Off Meeting Agenda January 14-16, 2019 Eilat, Israel

Day 1 – January 14, 2019					
9:00 am	Coffee & check in, pick up nametags, packages	Simon van Dam, Bracha Ehrman			
9:30 - 9:50	Introductions	Gur Yaari			
	Project Executive				
	Vision Statement				
9:50-11:45	Partner Introductions:	WP Leaders			
	• Each partner to present about themselves,				
	which WP's they are part of, and what they				
	expect to achieve in this project				
	<ul> <li>Slide 1 – contribution to the project</li> </ul>				
	Slide 2 – benefits to each from expected				
	project outcomes (5 min each WP Leader)				
11:45-12:00	Break (15 min)				
12:00-12:20	iReceptor Plus:	Gur Yaari			
	Objectives				
	• Vision of where we see this project going (20				
	min)				
12:20-12:40	iReceptor: Scientific background (20 min)	Felix Breden			
12:40-13:00	iReceptor Plus Technology Goals:	Brian Corrie			
	Where we see the technology going (20 min)				
13:00-14:00	Lunch (60 min)				
14:00-14:15	Project Management (WP 10) Presentation:	Simon van Dam,			
	EU Project Reporting Requirements	Bracha Ehrman			
	• Administrative details - time sheets, records,				
	eligible costs				
	Intra-consortium communication & decision-				
	making approach				
Work Package	Presentations:				
What is to be a	ccomplished/operationalized and key interdepender	cies within and among WPs			
Plans for the fir	st 6 months (30 min each – 15-minute presentation,	15-minute Q&A)			
Work Packages	s should discuss:				
The goals of their WP					
How their WP interfaces with other WPs					
Short te	rm (6-month activities and deliverables) and early w	orkplan			
Outputs:					
<ul> <li>Present</li> </ul>	ation as base material for consortium partners				
14:15-14:45	WP 1 – End user experience & user case	Brian Corrie,			
	demonstration	Daniel Gilbert			
14:45-15:15	WP 2 – Scale up & scale out the AIRR Data	Felix Breden,			
	Commons	Brian Corrie			







15:15-15:45	WP 3 – Layered Data Security	Artur Rocha
15:45-16:15	WP 4 – Analyses pipelines Lindsay Cowell,	
		Scott Christley
16:15-16:45	WP 5 – Advanced algorithms for mining AIRR-	Gur Yaari
	seq repositories	
16:45-17:15	WP 6 – Systems immunology	Encarnita
		Mariotti-Ferrandiz
17:15-17:45	WP 7 – Single cell data integration	Christian Busse
	Israeli Hosted iReceptor Plus Team Dinner	
Day 2 – Janua	ry 15, 2019	
	Team Building Trip to Timna Park	
	Details to be provided	
	Please wear closed walking shoes and warm	
	comfortable clothing	
Day 3 – Janua	ry 16, 2019	
9:00-9:30	Use Cases – Overview	Felix Breden
	Hospitals/Clinics	
	Research Community	
	Industry	
9:30-10:15	WP 8 – Innovation Management (IPR	Daniel Gilbert, Simon van
	Management), Exploitation & Business Planning	Dam
40.45.44.00		
10:15- 11:00	WP 9 – Dissemination, Communication &	Dan Gerstenfeld
44.00 44.45	VISIDIIIty	
11:00-11:15	Break (15 min)	
11:15-11:35	WP 11 – Ethics	Gur Yaari, Jos Dumortier
11:35-13:00	Working group (WG) meetings	WG1: WP1-4
	Start work on first/critical tasks for each WP	WG2: WP5-7
		WG3: WP8-11
13:00-14:00	Lunch	
14:00-16:00	Work group meetings and ad-hoc break-out	List of specific initial and
	sessions	critical tasks to be defined.

Working Groups should discuss:

- High-level goals of the working groups ensure everyone is on the same page
- Interactions/interdependencies of WPs with other work packages
- Tasks within work packages and leadership of those tasks among WP members
- Resourcing and timeframes of the tasks within the work package
- Short term deliverables (M1-6)
- How the WP members will work together (meetings, tools used, etc)

16:00-16:30	Summary presentations of WG meetings	Brian Corrie, Gur Yaari,
		Simon van Dam
16:30-17:00	Summary and Closing Next steps Work Package Meetings - May 2019 Genoa, Italy	Gur Yaari

