

## Training Event 4 minutes of H2020-ITN THERACAT (765497)

### Abstract

This document provides the minutes for the Training Event 4 of the THERACAT ITN project, held virtually on September 29<sup>th</sup> – October 2<sup>nd</sup>, 2020 (Platform: Microsoft Teams). The Training Event has been organized on-line due to the travelling restrictions resulting from the COVID-19 outbreak.

*Note: All presentations noted in the minutes are uploaded in the project website (intranet). Training sessions were also recorded and distributed to fellows.*

### Issued by

<b>Name</b>	Rosa Miralles	<b>Partner</b>	IBEC	<b>Date</b>	04/02/2021
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### Reviewed by

<b>Name</b>	Lorenzo Albertazzi	<b>Partner</b>	IBEC	<b>Date</b>	19/02/2021
<b>Name</b>	All Attendees	<b>Partner</b>	All	<b>Date</b>	05/03/2021

### Document Control

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## 1. Attendees

**IBEC:** Lorenzo Albertazzi, Rosa Miralles, Guillermo Orts, Bia Moreno

**TAU:** Ronit Satchi-Fainaro, Roey Amir

**TAG:** Marc Robillard

**CRUK:** Kirsteen Campbell, Tim Hudson, Thomas Edwards

### ESR Fellows:

Michela Vargiu\* (GRO)

Shreyas Wagle\* (TAU)

Krishna Vippala\* (TEVA)

Anjana Sathyan\* (TUE)

Stephen Croke\* (EDI)

Manos Arxontakis\* (TUE)

Alis Olea\* (IBEC)

Linlin Deng\* (TUE)

Africa Galvez\* (BGX)

Boris Lozhkin\* (BAS)

Melissa van de l'Isle\* (EDI)

Maria Vlastara\* (TAG)

Daniel Rodriguez\* (TAU)

*\* Have attended all week. The supervisors have attended the day of their training session.*

## 2. Agenda

### Training Event 4: Going in vivo, chemistry and cancer biology

All times scheduled are CEST (Madrid, Spain).

<b>Tuesday 29<sup>th</sup> September 2020: Animal experiments – ethical and practical aspects</b>			
<b>Schedule</b>	<b>Activity</b>	<b>Responsible</b>	<b>Attendees</b>
08:45-09:00	Connection to on-line platform	Miralles	ESRs
09:00-10:15	Ethical aspects of animal experiments: The 3-R's	Satchi-Fainaro	ESRs
10:15-10:30	Break	-	ESRs
10:30-11:45	Preclinical mouse cancer models for drug discovery and development	Satchi-Fainaro	ESRs
11:45-12:00	ESRs Meeting	ESRs	ESRs

<b>Wednesday 30<sup>th</sup> September 2020: Designing in vivo models and choosing the right controls</b>			
<b>Schedule</b>	<b>Activity</b>	<b>Responsible</b>	<b>Attendees</b>
08:45-09:00	Connection to on-line platform	Miralles	ESRs
09:00-10:15	<i>In vivo</i> models for cancer research – strategies for selecting the right model	Satchi-Fainaro	ESRs
10:15-10:30	Break	-	ESRs
10:30-12:00	Evaluation of pharmacological response	Satchi-Fainaro	ESRs

<b>Thursday 1<sup>st</sup> October 2020: In vivo imaging</b>			
<b>Schedule</b>	<b>Activity</b>	<b>Responsible</b>	<b>Attendees</b>
08:45-09:00	Connection to on-line platform	Miralles	ESRs
09:00-10:15	In vivo bioorthogonal chemistry for imaging and therapy: click-to-conjugate	Robillard	ESRs
10:15-10:30	Break	-	ESRs
10:30-12:00	In vivo bioorthogonal chemistry for imaging and therapy: click-to-release	Robillard	ESRs

**Friday 2<sup>nd</sup> October 2020: Fighting cancer – biomedical, social and economic aspects & How to communicate to and engage the public**

<b>Schedule</b>	<b>Activity</b>	<b>Responsible</b>	<b>Attendees</b>
08:45-09:00	Connection to on-line platform	Miralles	ESRs
09:00-09:30	THERACAT Communication Plan	Orts & Moreno (IBEC Comms Unit)	ESRs
09:30-10:45	Beating cancer with CRUK	Hudson (CRUK)	ESRs
10:45-11:00	Break	-	ESRs
11:00-12:00	How to communicate to and engage the public	Campbell, Edwards (CRUK)	ESRs

## 3. Minutes

### 3.1 Animal experiments – ethical and practical aspects

The course has provided an overview on ethical aspects associated to animal experiments in research, including some discussion (pros/cons) and real examples. It has also given a detailed analysis of the main preclinical mouse cancer models, describing for each of them the main features and applications, advantages, limitations and challenges, and including also *ex vivo* 3D models.

- Performed by: Ronit Satchi-Fainaro (TAU)
- Content:
  - Ethical aspects of animal experiments - The 3-R's: Performing experiments on animals (For and Against); Claims requiring animal research; Arguments for nehatating animal experiments; Animals in Research (Pros & Cons); Nobel Prizes following animal research; The 3Rs (Replacement, Reduction, Refinement); Responsibility; The importance of conducting ethical research for the results of the study; Replacement examples.
  - Preclinical mouse cancer models for drug discovery and development: Evolution of preclinical mouse models; Cell-line derived models; Syngeneic murine cell line-derived models; Human cell line-derived xenograft (CDX) models; Next generation in vivo modeling of human cancers; Patient-derived xenograft (PDX) models; Genetically engineered Mouse (GEM) models; Humanized mouse models; *Ex vivo* 3D models (Tumor spheroids, 3D bioprinting).

### 3.2 ESRs Meeting

Fellows are concerned about the impact that the COVID-19 outbreak may have on the timely completion of their PhD theses and organization of secondments. The Coordinator and Project Manager of the THERACAT inform ESRs that as travelling restrictions still apply in all countries participating in the project, secondments cannot be conducted and will have to be postponed until it is safe and allowed to travel. On the other hand, and after receiving requests from some supervisors, it is possible that a project extension would be requested if this helps ESRs to finish their experiments delayed due to the COVID-19 and complete their PhD theses. This will be further discussed with all supervisors in the following consortium meeting (Feb.-March 2021).

### 3.3 Designing in vivo models and choosing the right controls

The course has been focused on analyzing the main *in vivo* models for cancer research, how to produce them and advantages/limitations of each model, as well as on describing the main parameters that should be analyzed to evaluate the pharmacological response and how to measure them.

- Performed by: Ronit Satchi-Fainaro (TAU)
- Content:
  - *In vivo* models for cancer research – strategies for selecting the right model: Preclinical melanoma models; Preclinical breast cancer models; Preclinical glioblastoma models; Preclinical pancreatic cancer models.

- Evaluation of pharmacological response: Evaluation of biocompatibility; Evaluation of immune-reactivity; Evaluation of body distribution; Evaluation of tumor volume.

### 3.4 In vivo imaging

The course has given main concepts and strategies for *in vivo* imaging and therapy based on click-to-conjugate and click-to-release, from the chemistry behind it to the basics of nuclear imaging, including also real examples of research developed within Tagworks.

- Performed by: Marc Robillard (TAG)
- Content:
  - In vivo bioorthogonal chemistry for imaging and therapy – click-to-conjugate: Bioorthogonal reactions recap; Quick introduction to nuclear imaging and “internal” radiotherapy; Tumor pretargeting for radioimmuno-imaging and -therapy; Chemical approach to tumor pretargeting.
  - In vivo bioorthogonal chemistry for imaging and therapy – click-to-release: “Click-to-release” ADC approach to cancer therapy; Designing a suitable activator for *in vivo* applications; Other applications of the IEDDA pyridazine elimination reaction.

### 3.5 Fighting cancer – biomedical, social and economic aspects & How to communicate to and engage the public

The first part of the session has been conducted by the IBEC’s Communication Unit team who recently joined the THERACAT project, to explain to the ESRs the THERACAT Communication Plan and get them involved for future activities, being an interactive session between the IBEC’s Comms Unit members and the ESRs. The second part of the session has been performed by the team of Cancer Research UK, explaining the active role and commitment of CRUK in fighting cancer and the importance of this role considering the biomedical, social and economic impacts of cancer, as well as conducting a practical workshop on public engagement.

#### **THERACAT Communication Plan**

- Performed by: Guillermo Orts and Bia Moreno (Communications Unit, IBEC)
- Dissemination plan (objectives and target audiences); Communication actions (webpage, social networks, news); Next steps.

After discussion with the ESRs, it is agreed that those that are interested will be involved in managing the twitter account of the project during one week (one fellow/week, under the supervision of the IBEC Communication Unit members).

#### **Beating cancer with CRUK**

- Performed by: Tim Hudson (Research Engagement Manager, CRUK)
- Introduction to CRUK (world’s largest charity dedicated to saving lives through research); What do we do?; How do we fund research?; Our research; Our strategy; Our achievements; Cancer Grand Challenges.

### **How to communicate to and engage the public**

- Performed by: Kirsteen Campbell (Research Engagement Manager, CRUK) and Thomas Edwards (Graduate Talent Programme, CRUK)
- A practical public engagement virtual workshop has been conducted with the active participation of all the ESRs. Topics covered: What is public engagement and why is it important?; The secret sauce to effective engagement; Flexing style and content for different audiences; Jargon busting; Twitter Challenge; Engaging in our digital world; One step at time.