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European IP Helpdesk

From Lab to Market:
Successful Tech Transfer Journeys Driving Innovation Against Cancer

OncoQR: Boosting the Immune Response to Fight Cancer

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Agenda

- **Setting the Scene:** EPO Innovation Case Studies
- **OncoQR:** Boosting the Immune Response to Fight Cancer
- **Outlook:** Upcoming Training Sessions & Joint Activities

Setting the Scene:
EPO Innovation Case Studies

EPO innovation case studies

- Over 30 case studies on how European SMEs can create strategic value from patents
- How patents facilitate tech transfer from European research institutions
- Diverse tech transfer and business model scenarios
- Good practices in IP strategy and IP management

www.epo.org/case-studies

EPO SME case studies

EPO technology transfer case studies

EPO High-growth technology case studies

Licensing

- IonQ (IT Services - USA) +
- Unilab (pharmaceuticals - Philippines) +
- Dispelix (waveguide displays - Finland) +

Growth financing

- Roboze (additive manufacturing - Italy) +
- Plasmapp (medical electronics - South Korea) +
- DyeMansion (additive manufacturing - Germany) +

Build-to-sell

- Kindred Bravely (fashion, e-commerce - USA) +
- Dr Paul Atherton (fibre optics, energy storage, biotechnology - UK) +
- APS Technology Group (electrical machinery, software - USA) +
- Bender MedSystems (biotechnology - Austria) +

Open innovation

- Philips (Medical devices - the Netherlands) +

3 new case studies on IP to fight cancer

Damae Medical (FR)

Main product	Business model
Advanced medical imaging system	Product sales and related services

OncoMark (IE)

Main product	Technology transfer model
Diagnostic tests	University spin-off Company acquisition

OncoQR (AT)

Main product	Technology transfer model
Immunology vaccines	Technology licensing

OncoQR:
Boosting the Immune Response to Fight Cancer

EPO TECHNOLOGY TRANSFER CASE STUDIES
ONCOQR

Boosting the immune response to fight cancer

Abstract

Two entrepreneurial scientists with business experience have created a technology platform for immunology vaccines that make cancer and allergy treatment possible. For product development and technology commercialisation, they founded two startups, S-TARget therapeutics and OncoQR. Thanks to a robust patent portfolio and an IP strategy supporting their business case, they followed several commercialisation pathways, including investments in own research and development, collaborative development and technology out-licensing.

IP was essential for gaining revenues early on through licensing as well as for attracting funding. This was crucial given the long time-to-market periods that are typical in biotechnology.

Experts

- **Adéla Dvořáková**,

  European Research Executive Agency

- **Bowman Heiden**,

  Center for Intellectual Property (CIP)

Specific Total Immune Remodulation (S-TIR)

- Basis for immunotherapy vaccines against cancer
- “Warhead“ + disease-specific immunogen

Platform-based business model

- Platform model based on modularity of the technology
- Core of the platform: warhead
- **IP strategy:** patent protection of main elements of the warhead + trade secrets + optional product patents

→ Own R&D, licensing, collaborations

✓ *Multiple pathways towards product commercialization*

✓ *Financing own R&D through licensing*

✓ *Saving patenting costs*

→ *particularly advantageous in biotech due to long time-to-market*

Platform patents

No.	Title	Priority	Patent number	Comment
1	Bispecific molecule binding TLR9 and CD32 and comprising a T cell epitope for treatment of allergies	3 March 2006	EP1996230B1 WO2007098934A1	S-TARget therapeutics GmbH Use in oncology exclusively licensed to OncoQR ML GmbH
2	Immunoregulatory vaccine	13 July 2012	EP2872169B1 WO2014009209A2 WO2014009209A3	S-TARget therapeutics GmbH Use in oncology exclusively licensed to OncoQR ML GmbH
3	Coiled-coil connector	1 September 2015	EP3344647A1 WO2017037158A1	OncoQR ML GmbH

Product patents

No.	Title	Priority	Patent number	Comment
4	Gastrin peptide immunogenic composition	21 May 2013	EP2999485B1 WO2014187743A1	TYG oncology Ltd
5	HER2/neu immunogenic composition	18 May 2015	EP3297658A1 WO2016184862A1	OncoQR ML GmbH

Timeline

BUSINESS EVENTS
Founding of OncoQR ML
Founding of TYG oncology
Pre-clinical trials on NHP in the field of allergy
Pre-clinical trials on NHP for TYG100
First licensing agreement for S-TIR
Pre-clinical trials on NHP for OQR200
Pre-clinical trials on NHP for OQR200
Out-licensing for tumour-derived neoepitopes
Founding of S-TARget therapeutics
2006
2007-2009
2010
2011
2012
2013
2014
2015
2016
2017
2018-2021
2022
Filing of patent 1 (platform)
Patent filing (product TYG100)
Filing of patent 3 (platform)
Patent filing (product OQR200)
Filing of patent 2 (platform)
IP ACTIONS

Platform-enabled business and licensing structure

Key takeaways – IP strategy

TAKEAWAY

Commercialising platform technologies

Prioritising business development around a basic biotechnology platform helps provide efficiency gains in R&D and helps reduce the costs for IP protection.

TAKEAWAY

Complementarity of IP rights

Broader protection of the platform through a combination of patent portfolio and trade secrets can provide better protection against infringement and also extends the protection period.

Licensing strategy

- **Three types of licenses:**
  - ✓ *Target-by-target platform license (commercial)*
  - ✓ *Product license (commercial)*
  - ✓ *Research license (non-commercial)*

- **Licensing agreements**
  - ✓ *Generally exclusive for a specific use case*
  - ✓ *Back-licence on improvements of the warhead (open innovation platform)*
  - ✓ *Include secret know-how and support for manufacturing*

Key takeaways - licensing

TAKEAWAY

License-back provisions
A system in which licensing agreements include the right to use improvements made by other users is a great way to continuously increase the value of a platform technology as well as simplify negotiation.

TAKEAWAY

IP and technology licensing
Patents are important instruments for technology transfer. However, licensing agreements are generally of a higher value for both sides when they include not only patent rights but also secret know-how and further support for upscaling production.

Financing R&D

- Main options:
  - ✓ Research grants
  - ✓ Licensing revenues
  - x VCs/business angels
    - ➢ Drawback: loss of autonomy, disadvantage when too early
  - x Collaboration with big pharma
    - ➢ Drawback: requirements on maturity

→ Major role of IP in all scenarios.

Key takeaways – financing

TAKEAWAY

Involving venture capitalists

There is a window of opportunity for involving VCs for startups. It should not be too early (ideally after obtaining the proof of concept), but still before other funds are used up, for the startup to strike a win-win deal.

TAKEAWAY

Advisory boards

Biotech startups may benefit from setting up an advisory board composed of renowned scientists in the field as well as investors and business experts.

Outlook: options created by IP

- Pre-clinical trials completed

- Three pathways towards clinical phase 1 enabled by IP:
  - ✓ Own R&D for OQR200 (breast cancer)
  - ✓ Licensing-out for TYG100 (gastro-intestinal cancer) in exchange for a share in the company of the licensee
  - ✓ Licensing-out for an undisclosed product

→ IP plays a vital role in creating options to enter the next stage.

Let’s talk!

“Talk Innovation” podcast

Listen in!

https://www.epo.org/news-events/podcast.html

OncoQR (biotechnology - Austria) – NEW

Boosting the immune response to fight cancer

- The end of an R&D project or business venture need not mean the end for the technology involved as long as the main actors remain committed and maintain control over IP rights
- Setting up licence agreements combining multiple types of payments may safeguard a “portfolio of commercial possibilities” and can maximise the value of the technology for the parties involved.
- A system in which licensing agreements include the right to use improvements made by other licensees is a great way to continuously increase the value of a platform technology and, simplify negotiations in the long term.
- Broader protection of the platform through a combination of patents and trade secrets can provide better protection against infringement and also extends the protection period.

Technical field	Country	Main product	Technology transfer model
Biotechnology	Austria	Immunology vaccines	Technology licensing

Two scientists-turned-entrepreneurs have advanced a technology platform for immunology vaccines, enabling treatments for allergies and cancer. Based on a strong patent portfolio, they founded OncoQR and several other start-up companies for product development and technology commercialisation. IP was essential for attracting investment, as well as generating licensing revenues early on, in order to finance the long time-to-market periods that are typical in biotechnology.

Type of material	Download
Case study	OncoQR (EN)
Podcast	A proprietary platform to fight cancer: a technology transfer case study (EN)

You’ll also find the podcast episode in the individual case study section sections.

Outlook:
Upcoming Training Sessions & Joint Activities

Upcoming training sessions

- 22 June: Damae Medical
- 26 June: OncoMark

All sessions will take place from 10:30-11:30 AM (CEST)

EPO TECHNOLOGY TRANSFER CASE STUDIES
OncoMark

Smarter prognostic tests for early-stage breast cancer

Abstract

OncoMasTR is a multi-parameter prognostic test for early-stage breast cancer that can rapidly, accurately and

The test is based on patented technology that arose from a collaboration between Prof. Adrian Bracken at Trinity College Dublin (TCD) and Prof. William Gallagher at University College Dublin (UCD) in 2012 and was then exclusively licensed to OncoMark, a UCD spin-out, in 2014. OncoMark subsequently developed and validated the test which led to an acquisition of the company by a large US firm and the creation of a new start-up company.

EPO SME CASE STUDIES
DAMAE MEDICAL

A new dimension to skin cancer diagnosis

Abstract

The company was spun out from Institut d'Optique Graduate School, Palaiseau, France in 2014 by a team of photonics researchers. They have taken a patented technology with applications in biological and medical imaging and used it to create a new medical device for real-time diagnosis of lesions from all types of skin conditions, including skin cancer.

The technology is a new advanced medical imaging system, which is protected by a suite of six patent families and other IP rights. It is currently making a high impact in over 40 centres around the world including onco-dermatology clinics. Close collaboration with key opinion leaders in the world's top dermatology centres is driving new developments to provide dermatologists with artificial intelligence (AI) algorithms for diagnostic support.

Figure 1: Line-field Confocal Optical Coherence Tomography (LC-OCT) device – deepLive

Further SME case studies at epo.org/case-studies.

From Lab to Market: Recordings 2022

From Lab to Market - RECORDINGS 2022

Based on the set of seven technology transfer case studies, the seminar series aims to illustrate how patents facilitate technology transfer from R&D-conducting organisations and promote market success. Covering a range of economic sectors, countries, and types of technology transfer, each case study provides key takeaways for stakeholders in universities, public research organisations and businesses.

07 JUN 2022
Training and workshops
EU - From Lab to Market - Successful Technology Transfer Journeys - Case: OXEON RECORDING
Live streaming available

29 JUN 2022
Training and workshops
EU - From Lab to Market - Successful Technology Transfer Journeys - Case: Atlantic Therapeutics RECORDING
Live streaming available

12 JUL 2022
Training and workshops
EU - From Lab to Market - Successful Technology Transfer Journeys - Case: Dermis Pharma RECORDING
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13 SEP 2022
Training and workshops
EU - From Lab to Market - Successful Technology Transfer Journeys - Case: Blubrake RECORDING
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18 OCT 2022
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EU - From Lab to Market - Successful Technology Transfer Journeys - Case: Perceive3D RECORDING
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03 NOV 2022
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EU - From Lab to Market - Successful Technology Transfer Journeys - Case: fos4x RECORDING
Live streaming available

08 DEC 2022
Training and workshops
EU - From Lab to Market - Successful Technology Transfer Journeys - Case: Cubicure RECORDING
Live streaming available

Training Cooperation with EPO

Patent protection for EU funding beneficiaries

Training cooperation with the European Patent Academy of the EPO

Patent protection for EU funding beneficiaries

This lecture series, organised in co-operation with the European Patent Academy, addresses the IP-related aspects of EU-funded projects in five areas: medical technologies, artificial intelligence, green technologies, digital communication and biotechnology.

It introduces the main aspects of IP management: notably IP ownership, protection and exploitation. Each lecture explores the interface between patents and the respective technical field. The lectures may be of interest to a variety of audiences, from researchers to technology transfer officers. The online sessions include Q&A and are complemented with optional self-paced courses.

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13 JUN 2023

Training and workshops

EU - Webinar EPO Coop: Patent protection for EU funding beneficiaries - Green Technologies

Live streaming available

24 OCT 2023

Training and workshops

EU - Webinar EPO Coop: Patent protection for EU funding beneficiaries - Digital communication

Live streaming available

15 NOV 2023

Training and workshops

EU - Webinar EPO Coop: Patent protection for EU funding beneficiaries - Biotechnology

Live streaming available

Registration: www.ec.europa.eu/ip-helpdesk

High-growth technology business (HTB) community

Goals

- Support for decision-makers & IP professionals in tech driven enterprises
- Sharing how intellectual property can support their business
- Training in IP strategy, operational excellence, financing and strategic transactions

Join the community

- Stay updated on best practices
- Get access to training material
- Learn about upcoming offers

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Upcoming HTB events

HTB forum: Build-to-sell

29 June 2023, 17:00-19:00 (CEST)

✓Case study presenter: Ghassan Kassab, Founder & CEO of 3DT Holdings & California Medical Innovations Institute (USA)

✓International expert panel chaired by Juergen Graner, Founder and CEO, Globalator (USA)

Register: **Event Build-to-Sell**
Deadline: 29 June 2023

HTB forum: IP strategy and management

30 November 2023, 10:00-12:00 (CET)

✓Case study presenter: Thomas Nieraad, co-founder and Board Chair, Connect One Digital AG

✓International expert panel chaired by Prof. Alexander Wurzer, Director IP Management Education, CEIPI

Register: **Event IP Strategy and Management**
Deadline: 30 November 2023

European IP Helpdesk

- **Service initiative** of the European Commission
- Addressing **current and potential beneficiaries of EU-funded projects and EU SMEs**
- **Free-of-charge first-line support** on intellectual property (IP)
- Hands-on IP and innovation management support
- International **pool of IP experts** from various thematic fields
- Unique **cooperation scheme with the Enterprise Europe Network**: 44 ambassadors from 27 EU countries

Visit: www.ec.europa.eu/ip-helpdesk

Keep an eye out for updates

www.epo.org/sme

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info point at key networking events and conferences

Thank you for joining us today!

DISCLAIMER

The European IP Helpdesk provides free-of-charge first-line support on IP-related issues aiming to help current and potential beneficiaries of EU-funded projects, as well as EU SMEs, manage their Intellectual Property assets.

The European IP Helpdesk is managed by the European Commission's European Innovation Council and SMEs Executive Agency (EISMEA), with policy guidance provided by the European Commission's Directorate-General for Research and Innovation (DG RTD).

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