University of Rijeka
TECHNOLOGY TRANSFER OFFICE

Technology transfer in Croatia and lessons learned for the Western Balkan:

Experience of the University of Rijeka

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Technology transfer system at University of Rijeka

For successful Technology Transfer System there are 2 main preconditions:

- **Infrastructural** preconditions, and
- **Regulative** preconditions.

The base for technology/knowledge transfer activities are Intellectual Property Rights (IPRs).

Technology transfer system at University of Rijeka

University of Rijeka Technology Transfer Infrastructure:

- **University of Rijeka (11 Faculties, 4 Departments)**;
- **University of Rijeka Technology Transfer Office (UniRi TTO);**
- **Science and Technology Park (Step Ri).**

Regulative documents and policies:

- **UniRi Strategy;**
- **UniRi Innovation Strategy;**
- **UniRi Intellectual Property Management Policy;**
- **UniRi Regulation on Intellectual Property Management.**

Technology transfer system at University of Rijeka

Technology Transfer Office

- was established in March 2009 within Science and Technology Project (STP I) financed by the World Bank;
- is an organizational unit of the UniRi Rectorate;
- is an important link between academia and industry, acting in synergy with UniRi Science and Technology Park (Step Ri).

Technology transfer system at University of Rijeka

Technology Transfer Office Mission

To extract the fair market value of the University intellectual property and to stimulate creation of future viable IP by using the best business practices for the benefit of the University, its components (faculties and departments), staff and community.

The role of TTO is to screen, evaluate, protect and, in collaboration with Step Ri, commercialize IP generated at the University.

Science and Technology Park (Step Ri)

- was established in 2008 within TECHRO project finaced by BICRO (Croatian Business Innovation Agency) in accordance with the Ministry of Science, Education and Sports;
- in majority owned by the University of Rijeka;
- range of services offered revolve around three programs: IP transfer, licensing and incubation.

Support Program for technology transfer offices (TTO Program) at University of Rijeka

Projects approved and their implementation

Projects approved for UNIRI TTO (total value 170.000 eur):

1. **Functional Endoscopic Sinus Surgery Training Model (Fess Slices)**
2. **Immunotoxin for the treatment of glioblastoma multiforme (ATTRI)**
3. **New feature for enhancing the level of objectivity in specific field using ultrasound diagnostics (B – lines)**
4. **Monoclonal antibody bank to viral and cellular proteins (CROmAb)**

Project manager:

Petra Karanikic, PhD, LL.M. in IP, Head of Technology Transfer Office

Eligible activities within the Program:

- Evaluation of commercial potential
- Development of IPRs protection strategy
- Development of business model/business plan
- Spin-off/start-up creation
- Estimation of technology value for commercialization
- Commercialization partners search
- Negotiating activities
- Commercialization contracts preparation

Functional Endoscopic Sinus Surgery Training Model (Fess Slices)

Project description:

School of Medicine of University of Rijeka has developed a training model for Functional Endoscopic Sinus Surgery (FESS SLICES). Precise design of the model that contains 15 coronary slices allows training of such surgical procedure what leads to improvement of the surgeons practice. This model is ideal substitution for use on cadavers for learning procedures. It is based on a modern technology that brings improvement in educational process.

Project duration: 15/07/2016 – 15/04/2018

Project value: 162.551,46 kn (approx. 22 000 Eur)

Project status: finished (grant realization 98,56%)

Functional Endoscopic Sinus Surgery Training Model (Fess Slices)

Project results:

- Evaluation of commercial potential
- Economic valorization of IP
- Business plan/business model developed (in-house)
- Pilot lot production (50 pcs)
- Meetings with potential partners for commercialization (>15)
- License Agreements – 1 (Tabletop ltd.)
- Trademark protection
- Extension of Industrial design protection

fesslices

(210)/(260)	**Application number**	1340443
(270)	**Application language**	en
(220)	**Application date**	2011-10-31
	Trade mark office	WIPO - WIPO
(190)	**Registration office**	WO
	Receiving office	HR
(111)	**Registration number**	1340443
(151)	**Registration date**	2011-10-31
(141)	**Expiry date**	2021-10-31
(832)	**Designation(s) under Madrid Protocol**	EM-NO-TR-US
(834)	**Designation(s) under Madrid Protocol (Article 9-6)**	CH
(527)	**Use intent office(s)**	US

Immunotoxin for the treatment of glioblastoma multiforme (ATTRI)

Project description:

The ATTRI project is focused on glioblastoma multiforme (GBM), which represents the most malignant form of brain tumor. The results of preliminary experiments have shown that the focus of ATTRI on CD155 selectively kills the tumor and prevents its expansion. Thus, ATTRI has been designed to specifically remove tumor cells without affecting the healthy brain cells, which should decrease the probability of permanent neurological damage of the treated patients. The results of preliminary experiments show that the same principle could also be used for the treatment of other malignant diseases.

Project duration: 15/07/2016 – 30/11/2018

Project value: 404.313,53 kn (approx. 54 000 Eur)

Immunotoxin for the treatment of glioblastoma multiforme (ATTRI)

Project results:

- Evaluation of commercial potential and market research
- IP protection strategy developed:
  Provisional patent application filed (November 2017)
  PCT Patent Application filed (November 20th 2018)
  Patent Application. No. PCT/IL2018/051245
- Business model/business plan developed
- Meetings with potential commercialization partners (>15)
- Signed Commercialization Agreement between MEDRI and Yissum research development company of the Hebrew University of Jerusalem ltd. (December 2017)

New feature for enhancing the level of objectivity in specific field using ultrasound diagnostics (B – lines)

Project description:

Ultrasound technology is used in different areas as a tool for diagnosis. Usage in the diagnosis of lung disease due to the specific organ structure is limited comparing to the examination of other organs. B – lines are a diagnostic indicator for the condition of lung tissue of patients. They can be observed on the monitor of the ultrasound device varying in appearance, intensity and number. Due to this variability and slow movement of the human eye it is difficult to count B-lines. Developed solution can determine objectively the number of B-lines during examination of patient in a real time and in a non-invasive manner.

Project duration: 15/07/2016 – 30/11/2018

Project value: 149.517,90 kn (approx. 20 000 Eur)

New feature for enhancing the level of objectivity in specific field using ultrasound diagnostics (B – lines)

Project results:

- Evaluation of commercial potential
- Economic valorization of IP
- Business plan/business model developed (in-house)
- Meetings with potential partners for commercialization (>15)
- License Agreements – ? (NDA signed with the company Quipu S.r.l.; the continuation of potential collaboration/commercialization is expected in 2019)
- Extension of existing trademark protection (QUANTUM)

Monoclonal antibody bank to viral and cellular proteins (CROmAb)

Project description:

Monoclonal antibodies have the ability to recognize proteins of human, animal and viral origin and as such represent irreplaceable tools in biomedical research and development of diagnostic and therapeutic preparations. The antibody collection at the Center for Proteomics at the Faculty of Medicine of the University of Rijeka enables the visualization and manipulation of 75 proteins and has the potential to respond to a number of unmet questions of biomedicine. The possibility of application includes: biotechnological applications, basic research, clinical diagnostics and laboratory medicine and pathology, therapeutics,

Project duration: 15/12/2016 – 30/11/2018

Project value: 556.310,50 kn (74 000 Eur)

Monoclonal antibody bank to viral and cellular proteins (CROmAb)

Project results:

- Evaluation of commercial potential and market research
- Business model/business plan developed
- 2 license agreements signed
- Spin-off company „Nectin Therapeutics Ltd" founded (based in Israel) - the primary subject of the License Agreement between Rijeka/Yissum and Nectin Therapeutics spin-off are PVR mAbs
- Certification of mAbs – certificate ISO9001:2015 for quality management system in production and sales of monoclonal antibodies was approved to Faculty of Medicine Center for proteomics
- Branding – visual identity and online store developed

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

Cro Cert has issued an IQNet recognized certificate that the organization:

Sveučilište u Rijeci, Medicinski fakultet
Centar za proteomiku
Braće Branchetta 20
51000 Rijeka, Croatia

has implemented and maintains a

Quality Management System

for the following scope:

Production and sale of monoclonal antibodies,

which fulfils the requirements of the following standard

ISO 9001:2015

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The Center generates mAbs of the highest quality, which have been demanded by industrial and academic users worldwide due to their great significance in the studies of pathogenesis of viral disease.

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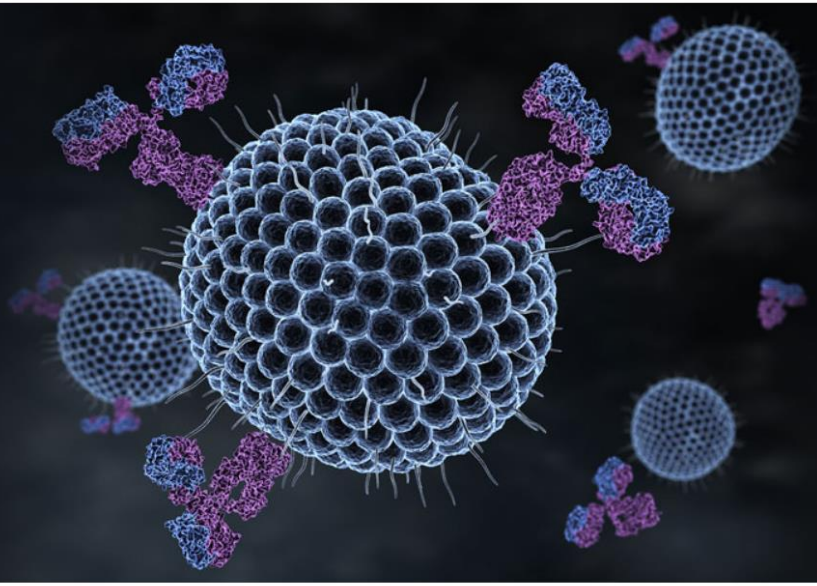

ADVANCED SEARCH

TOP SELLING ANTIBODIES

Concluding remarks

PROs

- Support Program for technology transfer offices helped TTOs to develop and start commercialization activities for projects which already finished their proof-of-concept phase;
- Program assured financial resources for all relevant technology commercialization activities (evaluation of commercial potential, market research, IP protection, etc.);
- HAMAG-BICRO was very flexible, helpful and open-minded in particular specific situations (unexpected) which appeared during the project implementation;
- Learning-by-doing;
- Network and database of relevant contacts, etc.

Concluding remarks

CONs

- Capacity building (staff) as well as educational activities were not eligible for financing within the Program;
- TTO staff was occupied with lot of administrative work what resulted with less time to get a full advantage of learning-by-doing approach;
- Relatively complex procurement process (stricter than the UniRi rules).

Recommendations

- to continue with the Program implementation;
- to use experience from this Program and include TTOs in the future calls preparation that should be tailored according to specific TTOs needs;
- to include capacity building activities (staff and specific training);
- to link the „Proof-of-concept” (PoC) program with TTO Program;
- to support organization of awareness raising and networking events on importance of technology transfer;
- to enable and financially support stronger collaboration between all TTOs in Croatia (through formation of national Croatian TTOs association);
- ...

Challenges

Current state of technology transfer activities in Croatia:

- 3 University TTOs (UNIZG, UNIST, UNIRI) – status, ljudski resursi, financiranje
- The role of Ministry of Science
- Government regulations
- Coordination of relevant stakeholders in technology transfer system on the national level
- Sources of funding for technology transfer activities (PoC, TTO Support Program, EU funds, etc.)

Thank you!

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