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PROJECT FINAL REPORT

Grant Agreement number: 316289

Project acronym:

InnoMol

Project title: Enhancement of the Innovation Potential in SEE through new Molecular Solutions in Research and Development

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1.1 Final publishable summary report

1.1.1 Executive summary

EU boosts research in Croatia - an EU initiative is strengthening the infrastructure of one of the leading research institutes in Croatia.

Overcoming major healthcare challenges such as cancer and autoimmunity is of primary importance for the European Union. To develop new diagnostic, preventive or therapeutic approaches for these diseases, Europe needs to invest in relevant research and technology transfer activities.

The EU-funded InnoMol (Enhancement of the innovation potential in SEE through new molecular solutions in research and development) initiative aimed to foster a research pipeline at the Ruđer Bošković Institute (RBI) in Croatia. The scope was to facilitate new avenues of innovation and technology for the investigation of relevant diseases. Through the establishment of a centre of excellence, InnoMol had aimed to close the gap between research and valorisation of innovative products. Among the objectives of the initiative was the unlocking and development of the research potential of the Institute so as to render RBI a dynamic leader in Molecular Bioscience research in South Eastern Europe. For this purpose, RBI recruited seven experts in the fields of Medicine, Biology, and Chemistry. New resources and equipment have been purchased to complement the existing scientific platforms of genomics, proteomics and imaging. A significant part of the project involved networking with EU partners to strengthen RBI research and participate in research activities at the community level. So far, RBI researchers and collaborators have submitted several Horizon 2020 project proposals. Further input from EU partners will contribute towards strengthening and implementing an IP management plan to help build a framework for innovation capacity. Dissemination activities included the organization of international conferences, media appearances, press releases, posters and presentations at numerous events. Taken together, the InnoMol efforts were designed to upgrade the research and technology capacity of RBI and become established in Molecular Biosciences research. They were also conceived to forge strategic partnerships between RBI and appropriate enterprises, thereby contributing towards the translation of research findings into marketable services and products. InnoMol proved that by joining forces, leading scientists were capable of managing a complex and multidisciplinary project. It created an atmosphere of departure, to leave the old strategy where everybody persisted in their own field, and move on to endeavouring to work in a new challenging, promising and overarching research field.

RBI now has the most advanced genomics platform, which will allow R&D for genetic testing, for example development for custom–tailored tests for any genetically assessable disease. Such technology use has huge potential in several respects. For example, job creation for certain profiles of scientists such as bioinformaticians, and data analysts, but also experts in product development,

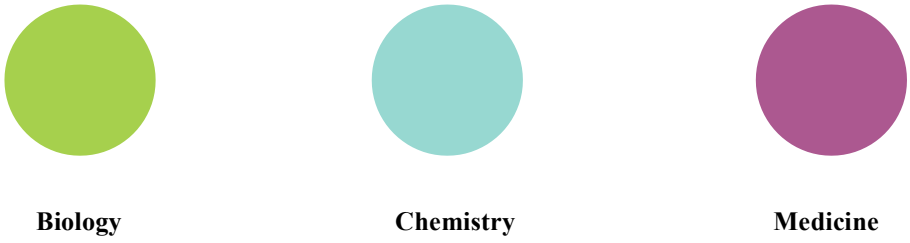
molecular biologists and biochemists. The RBI is also collaborating with SMEs to develop new clinical diagnostics approaches. Furthermore, the researchers are using a genomics platform to upgrade the services of the Croatian health insurance system for precise and personalized medicine. Ultimately, InnoMol has opened up new avenues for R&D, as well as serving as an example for entrepreneurship in Croatia and the surrounding region, thanks to its creation of start-ups.

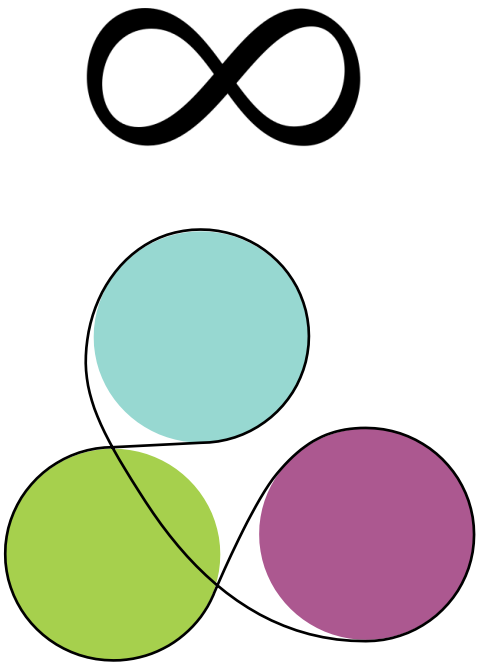
The official InnoMol logo

1.1.2 Summary description of project context and objectives

The major aim of InnoMol is to improve the scientific and socio-economic impact of Life Sciences related Divisions at the Ruder Boskovic Institute, by the acquisition of high-level equipment for Genomic and Molecular Biological technology that was complemented by experienced human resources and international exchange of knowledge and technology. On longer term, diagnostic and therapeutic applications are envisioned.

InnoMol managed to gather three worlds within the life sciences – biology, chemistry, and biomedicine – in order to generate synergy in order to enable a research pipeline designed to allow research from single molecules to concrete solutions in the health and/or life sciences domains. The decision was made to utilize inter- and multidisciplinary approached in order to maximise the research environment that exists at the Ruđer Bošković Institute (RBI), Croatia.





Synergy of 3 'worlds'

The fully assembled research pipeline will enable inter- and, multidisciplinary research in the field of Molecular Biosciences with focus on DNA-Protein, Protein-Protein, Protein-RNA, DNA-RNA and DNA-DNA interactions. Such pipeline will enable elucidation of molecular processes in health and disease from different angles using a variety of molecular approaches, and thus increase innovation potential in order to contribute to new avenues of Molecular Biosciences research.

Beginning with molecular design, the pipeline involves the synthesis of novel organic compounds, which can then be tested for activity towards a large number of DNA, RNA and protein targets. Those compounds exhibiting promising medicinal properties can be used as leads in the rational development of new, and potentially more potent, molecules. On the other hand, substances that appear relatively inert can be refined into efficient markers for use in bio-imaging and testing. The effective implementation of a pipeline of this kind, which is the goal of the InnoMol team, will require optimization on numerous levels across several scientific disciplines.

Thus, InnoMol will establish a core of a think-tank to combine the best knowledge of the three worlds “Medicine”, “Biology” and “Chemistry” providing multiscale molecular solutions to derive predictive, quantitative and practical models for biological systems. Strong bioinformatics support will provide cohesion within the research pipeline, and thus maximise its output by unlocking data generated by high-throughput applications such as microarrays and mass spectrometry.

Present human resources will be strengthened by exchange of Know-How with high-profile partnering organisations. Scientific fields where InnoMol is less present will be enhanced by recruitment of experts to increase capacities and capabilities.

In that context, RBI is seeking opportunities to collaborate with SME industry in order to engage in new innovation to contribute to sustainability. InnoMol will aid in fostering such envisaged collaborations through the established research pipeline that will comprise the S&T backbone for enabling RBI to excel beyond the State-of-the-Art.

In particular, InnoMol will accelerate the pace of discoveries of human genetic variation by using latest NGS technology, and translate the basic science discoveries into new biomarkers to assess the contribution of genes and gene-environment interactions (behaviour, nutrition, chemicals, and other exposures) to individual and population risks for various cancers. Without the expansion of population sciences in genomics, the promise of genome research and discoveries may not reach its full potential.

New S&T capacities and capabilities of RBI will be introduced to public and professional audiences through workshop activities and conferences. This will highlight new opportunities for diagnostics and basic research in the SEE region, exposing RBI as driving force in the Molecular Biosciences.

Community support will improve presence of RBI researchers abroad through participation at high profile international conferences and meetings. Interaction with leading experts in Molecular Biosciences research may aid in exchange of ideas, and may initiate national and international collaboration that will contribute in broadening and tightening networks, and a better integration of RBI in the ERA.

Summary objectives:

- Shed light on the dynamic processes within living organisms to better understand the causes and potential treatment of genetic diseases.
- Lessen the healthcare burden through the enhancement of research into the diagnostic, preventative and therapeutic approaches to major diseases such as cancer, autoimmune diseases and degenerative diseases amongst others.
- Open up new avenues for R&D in Croatia.

1.1.3 Description of the main S&T results/foregrounds

The work performed is bundled in the InnoMol Action plan that includes a coherent set of 4 measures organized into seven Work Packages:

- Measure 1: Recruitment;
- Measure 2: Twinning;
- Measure 3: Research Equipment;
- Measure 4: IP development;

The Work Packages were conceived to either directly address the above measures or to provide coordination and support towards their realization.

Addressing these measures, S&T results have been obtained as follows:

1.1.3.1 Work Package 1: Recruitment

The objectives of WP1 were to (1) Enhance knowledge and know-how of RBI by hiring experienced researchers, and (2) Strengthen human resources in areas that are inadequately covered by present RBI staff. These objectives were undoubtedly met during the project, thus creating a productive, state-of-the-art environment, with exploitable results described in Section B.

A brief overview over Personnel, man-months per person, and short description of tasks is shown in table below:

WP 1	**Human resources - Permanent staff**	Person/ month	Task	Description
1	Maja Herak Bosnar	5	All tasks WP1	Workpackage leader Coordination of WP1; prepare deliverable reports; attend PMB meetings
2	Jelena Knežević	6	T1.1.1 T1.1.2 T1.1.4	Advertise job vacancies at national and international level (EURAXESS); form evaluation committee; establish criteria: Track record, research skills, and experience in research management; prepare contracts in communication with IRB staff and HR office

The initially envisaged expert positions, e.g. 7 planned positions with an optional 8th position (see ANNEX I, Description of Work) resulted in employment of altogether 10 individuals who filled the aforementioned maximimum 8 available positions successively. Because some experts left the project before its end due to other job opportunities, we filled vacancies accordingly. Positions were filled by foreigners, nationals, or returning nationals, thereby contributing to some extent to reverse 'brain drain' effects.

Table below shows a brief overview of recruitments:

1.1.2	Recruitment - Experts	Person/ month	Duration	Task	Description
1.1.2.1	Marija Matković	33	02.09.2013 to 31.05.2016	T3.8 T3.9 T3.9.1 T3.9.2 T3.9.3	Spectrophotometric studies of DNA-protein-small molecule interactions; UV/vis, fluorescence and CD/ORD/LD spectrophotometry
1.1.2.2	Filip Šupljika	31.2	02.09.2013 to 07.04.2016	T3.8 T3.9 T3.9.1 T3.9.2 T3.9.3	Microcalorimetry on VP-ITC and nanoDSC instruments for studies of DNA-protein-small molecule interactions
1.1.2.3	Pau Marc Munoz Torres	31.3	20.02.2014 to 30.09.2016	T3.3, T3.3.1 T3.5.1 T3.5.2	Data handling and storage; Bioinformatics analysis; Quality Check and sequence filtering; Alignment of sequences to reference genomes
1.1.2.4	Vedrana Filić Mileta	34.5	17.07.2013 to 31.05.2016	T3.10 T3.10.1 T3.10.2 T3.10.3	Establish services for Confocal Laser Scanning Microscopy (CLSM); Live cell microscopy; image analysis
1.1.2.5	Adriana Lepur	30.4	18.11.2013 to 31.05.2016	T3.2.1	biochemistry (protein expression, purification and localization), protein-protein interaction assays
1.1.2.6	Jelena Trmčić Cvitaš	19.6	13.01.2014 to 31.08.2015	T3.2.2 T3.4 T3.5 T3.7	printing on specifically coated slides; development of prototypes
1.1.2.6	Jozefina Katić	7	03.11.2015 to 31.05.2016	T3.2.2 T3.4 T3.5 T3.7	printing on specifically coated slides; development of prototypes
1.1.2.7	Robert Belužić	23.8	07.06. 2014 to 30.09.2016	T3.3.2 T3.3.3 T3.5	Methylation array analysis; fluorescent probe construction and implementation
1.1.2.8	Ivana Grbeša	2.9	10.01.2015 to 06.04.2015	T3.6.2	Perform heavy methyl SILAC combined with Mass spectrometry
1.1.2.8	Arijana Zorić	10.3	23.07.2015 to 31.05.2016	T3.10.4	simulations and modeling, image processing

In particular, it is worthwhile to point out is that during reporting period 2, the hired IP manager allowed effortless preparation of two patent applications originating from InnoMol support (Table B1, confidential data).

The scope addressed is most easily seen from the following summaries of the resources associated with WP1.

Table 1.1.3.1.1: Person month summary for WP1

Person Months WP1	Permanent Staff	Temporary Staff	Total
Total Foreseen	11.0	315.0	326.0
Used in Period 1	9.2	129.6	138.8
Used in Period 2	1.2	189.4	190.6
Used in Period 3	0.0	11.0	11.0
Balance	0.6	-15.0	-14.4

Table 1.1.3.1.2: Financial summary for WP1

Cost Category	**Explanation**	**WP**	**Period**	**Amount EUR**
Personnel	Permanent staff, PM 9,2	1	1	19,512.47
Personnel	Recruitment - experts, PM 84,6	1	1	303,755.34
Personnel	Recruitment - technical, PM 45	1	1	81,378.75
Personnel	Permanent staff, PM 1,2	1	2	2,259.27
Personnel	Recruitment - experts, PM 135,4	1	2	487,014.47
Personnel	Recruitment - technical, PM 54	1	2	99,199.28
Personnel	Recruitment - experts, PM 8	1	3	28,720.68
Personnel	Recruitment - technical, PM 3	1	3	5,497.29
Total	Combined	1	All	1,027,337.56

1.1.3.2 Work Package 2: Exchange & Secondments

The main objectives of WP2 are to (1) Strengthen the existing research potential of RBI and (2) Help to strengthen the S&T capacities of RBI researchers to successfully participate in research activities at Community level and the FP7 programme, and beyond (Horizon 2020). The goal was to improve the human resources of RBI to keep up with international standards, and to strengthen the overall research potential.

A brief overview over Personnel, man-months per person, and short description of tasks is shown in table below:

WP2	**Human resources - Permanent staff**	**Person/ month**	**Task**	**Description**
1	Marijeta Kralj	15	All tasks WP2	Workpackage leader Coordination of WP2; deliverable reports; attend PMB
2	Katja Ester	6.5	T2.1 T2.2 T2.3 T2.4	Organise outgoing secondments: – supervise the proper implementation of activities communicate with the international partners – take care of Institutional/Croatian legislation – correcting and filing of secondments reports Organise incoming secondments:
3	Nikola Basarić	1.5		
4	Martina Malnar	3.5		
5	Branka Salopek	2.1		
6	Neda Slade	5.4		
7	Maja Herak Bosnar	8.1		

8	Ana-Matea Mikecin	2.1		– organize the visits of researchers from international partnering institutions (flight booking, etc.) travel costs reimbursement – the calculation of the travel expenses, preparation of necessary documents and active correspondence with the partners Reports on secondment visits (outgoing/incoming) Secondment Reports- Post Implementation Review – evaluation of the contribution of activities to the Research

To achieve these objectives, and to realize the requisite exchange of know-how, a series of trans-national two-way secondments of research staff of the RBI and 36 knowledgeable and experienced 'partnering organisations' in 10 EU Member States and 1 associated State have been organized.

In total, scientists from the Ruđer Bošković Institute spent 76,7 out of 101,5 envisaged person/months at secondments visiting 33 of 36 partner institutions and 51 out of 54 tasks were successfully completed during the project, which amounts to 75% of total planned outgoing secondments in terms of time spent at the foreign institutions. Several institutions, such as ALMF, HUGI, IBMB, ILAN and BIO, were particularly frequently visited, even more than initially planned, whereas some others (PRO, UNIMAN, VUB, CBM and UNIROMA) were visited to a lesser extent than initially planned.

Undoubtfully, human resources have been upgraded through altogether 46 exchange secondments involving 33 of the 36 partnering organisations spread throughout the ERA.

Secondees established contacts with leading experts in the field (at partnering organizations). The intensive networking resulted in several new international projects including InnoMol partners, thereby contributing to sustainability of research of InnoMol staff, using established State-of-the-Art equipment. Gathering experience in leading projects will be important for further advancing careers and driving cutting-edge science. Joint experiments have been performed, new methods have been acquired, and scientific services that are not yet available at RBI have been consumed at partner institutions. Last but not least, networking with InnoMol partners resulted in numerous national and international proposals where partnering organizations are participating as collaborators or consultants. Also, submission of Horizon 2020 project proposals, although not funded fostered the ‘good practices’ for continuing collaborations on all levels. One proposal is still under evaluation, H2020-WIDESPREAD-04-2017-Teaming Phase1 (Proposal BioMedMode, project ID 763595), which might serve as an opportunity for creating a Centre of Excellence for molecular biosciences at RBI. The resources associated with these measures are summarized below.

Table 1.1.3.2.1: Person month summary for WP2

Person Months WP2	Permanent Staff	Temporary Staff	Total	Secondments RBI Staff
Total Foreseen	48.0	0.0	48.0	101.5
Used in Period 1	19.0	0.0	19.0	22.4
Used in Period 2	25.7	0.0	25.7	54.3
Used in Period 3	0.0	0.0	0.0	0.0
Balance	3.3	0.0	3.3	24.8

Table 1.1.3.2.2: Financial summary for WP2

Cost Category	**Explanation**	**WP**	**Period**	**Amount EUR**
Personnel	Permanent staff, PM 19	2	1	46,107.15
Travel	Outgoing secondments	2	1	131,490.65
Travel	Incoming secondments	2	1	18,551.02
Personnel	Permanent staff, PM 25,7	2	2	59,124.51
Travel	Outgoing secondments	2	2	348,035.18
Travel	Incoming secondments	2	2	19,687.98
Total	Combined	2	All	622,996.49

1.1.3.3 Work Package 3: Equipment Implementation & Exploitation

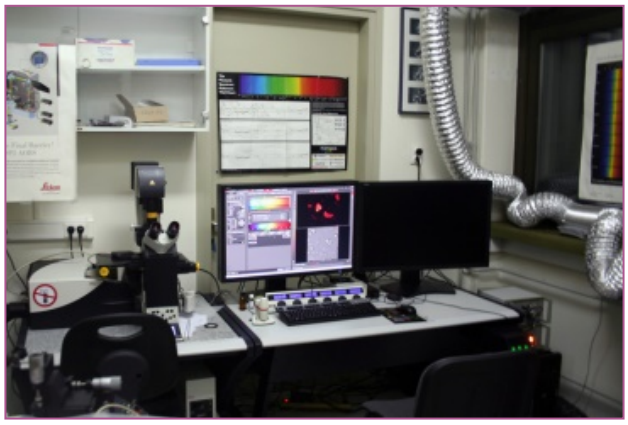
The objectives for WP3 were to: (1) Engage in innovation and cutting edge technology, (2) Enable partnership with SME industry, (3) Serve as gateway for accessing resources, skills, and technology new to the regional community, (4) Strengthen IRB Core Facilities, and (5) Stimulate the realisation of sustainability after project closure.

The main tasks of WP3 are the purchase or upgrade of capital equipment, followed by testing and eventual troubleshooting if needed. The majority of the instruments were acquired according to the schedule. The staff employed via InnoMol attended producer organized seminars to get hands on experience, as foreseen. Similarly, all foreseen visits to collaborating groups directly related to instrumentation were realized, adding to the experience of each group responsible for major instrumentation.

NGS instrument

The resources available at RBI have been complemented by the EC contribution and feature the major scientific platforms of genomics, proteomics and imaging, linked together through the envisaged pipeline. During the life of the project major equipment for the Bioimaging, Molecular interactions, and the Genomics platforms has been acquired. In particular the Next Generation Sequencing (NGS) unit has been able to be exploited scientifically and commercially. The NGS

platform features the latest development lines of that kind of equipment, released in 2015 and 2016, respectively, representing breakthrough sequencing technology for small sample sets, not available before 2016.



Confocal microscope

Furthermore, it is now possible to use the genomics platform to upgrade the services of the Croatian health insurance system for precise and personalized medicine. Offering advanced genetic testing, for example in cancer prevention, most common to the wider public is breast and ovarian cancer genetic testing, we are closing in on world wide standards for application of new cancer therapies that rely on genetic testing prior therapy. Additionally, through unprecedented insights into the genetics of human disease, InnoMol has the potential to boost the public health sector of SEE and contribute by dramatically decreasing overall costs for genetic analysis, and increasing capabilities to tackle yet unknown diseases in order to provide better or new therapies.

Careful consideration has been given to the scientific evolutions during recent years in technology or structural and cellular biological applications. Imaging technology has made huge progress for cellular imaging of life cells in physiological conditions and changes in the environment programmed from hormone like human or other mammalian proteins or hormones that can be followed in time-lapse experiments. Therefore, the new confocal microscope is an essential tool for upgraded cellular biology which can be applied for the development of new therapeutics.

Isothermal Titration Calorimetry (ITC)

This technology also touches new developments in the Division of Organic Chemistry where new fluorescent dyes are being developed. Quantification of specific interactions within or at the surface of the cell are made possible by better image analysis software. For higher level application of image analyses software, the ICT Division could play an important supportive role. Three-dimensional imaging requires much more advanced software where there is room for improvement and animations would be very useful instruments for dissemination to the general public or for educational purposes in high schools and universities.

A brief overview over Personnel, man-months per person, and short description of tasks is shown in table below:

WP 3	**Human resources – permanent staff**	Person/ month	Task	Description
1	Ivo Piantanida	19.3	All tasks WP3	Workpackage leader Coordination of WP3; Acquisition and implementation of major equipment; prepare deliverable reports; attend PMB meetings
2	Igor Weber	9.1	T3.1 T3.2 T3.3 T3.4 T3.5 T3.6 T3.7 T3.8 T3.9	Screening for interactions of new small organic compounds with biological targets; DNA and protein scanning and array fabrication; Implementation of Mass spectrometry applications and preparation and processing of biological samples;
3	Helena Ćetković	4.8		
4	Robert Belužić	1.8		
5	Ivana Grbeša	2.5		
6	Mario Cindrić	2.2		
7	Rajko Horvat	0.6		
	Human resources – technical staff			
1.1.3.1	Lucija Kovačević	36	T3.5	Establish services for Third Generation Sequencing; RNA-Seq (whole transcriptome or small RNA)
1.1.3.2	Marko Šoštar	33	T3.10.1 T3.10.2 T3.10.3	Establish services for Advanced fluorescence-based methods
1.1.3.3	Josipa Matić	33	T3.8 T3.9	assistance in organic synthesis of bioimaging probes and screening for interactions of new small organic compounds with biological targets

Table 1.1.3.3.1: Person month summary for WP3

Person Months WP3	Permanent Staff	Temporary Staff	Total
Total Foreseen	33.0	0.0	33.0
Used in Period 1	27.7	0.0	27.7
Used in Period 2	12.6	0.0	12.6
Used in Period 3	0.0	0.0	0.0
Balance	-7.3	0.0	-7.3

Table 1.1.3.3.2: Financial summary for WP3

Cost Category	**Explanation**	**WP**	**Period**	**Amount EUR**
Personnel	Permanent staff, PM 27,7	3	1	71,585.55
Equipment	Confocal microscope	3	1	674,368.80
Equipment	NanoACQUITY UPLC	3	1	106,980.55
Equipment	Highly sensitive ITC instrument	3	1	98,819.67
Equipment	Highly sensitive DSC instrument	3	1	85,685.14
Equipment	High performance server	3	1	38,199.02

Equipment	Laboratory centrifuge	3	1	30,260.43
Equipment	Microviscometer	3	1	19,721.86
Equipment	Ultrasonicator	3	1	17,618.33
Equipment	Automated cell counter Z2	3	1	15,541.05
Equipment	Other minor equipment	3	1	46,854.47
Other	Upgrades of existing equipment	3	1	100,699.57
Other	Licenses	3	1	17,378.32
Personnel	Permanent staff, PM 12,6	3	2	33,496.91
Equipment	NextSeq 500 Sequencing System (NGS)	3	2	206,213.52
Equipment	MiniSeq Sequencing System	3	2	60,075.08
Equipment	RT PCR instrument	3	2	18,375.00
Equipment	Other minor equipment	3	2	10,227.07
Other	Upgrades of existing equipment	3	2	86,879.69
Other	Licenses	3	2	4,576.25
Total	Combined	3	All	1,743,556.26

To date, the project has seen success in generating and sustaining new jobs, with InnoMol recruited staff having received permanent job positions at several institutions, including private companies, universities, and at RBI. InnoMol has also commercialised equipment, with nearly all of the acquired equipment being open access. Private companies, the academic sector, and RBI internal staff have access and pay for usage. Generated future revenue will be reinvested in employment of additional experts.

RBI now has the most advanced genomics platform, which will allow R&D for genetic testing, for example development for custom–tailored tests for any genetically assessable disease. Such a next-generation-sequencing market has huge potential in several respects. For example, job creation for certain profiles of scientists such as bioinformaticians, and data analysts, but also experts in product development, molecular biologists and biochemists, thereby successfully contributing to smart specialization in the STEM field. The RBI is also collaborating with SMEs to develop new clinical diagnostics approaches.

Finally, InnoMol is opening up new avenues for R&D, as well as serving as an example for entrepreneurship in Croatia and the surrounding region, thanks to its creation of start-ups.

1.1.3.4 Work Package 4: IPR Management

The objectives for WP4 were to (1) Develop the plan for IP management, and (2) Integrate InnoMol scientific output to the knowledge database of RBI.

WP4 contributed in recognizing emerging IP form RBI research activities, which resulted in two patent applications (confidential, Table B1).

WP4 engaged in preparation of new RBI's Rules of intellectual property and conflict of interest, and in IPR counselling and advising especially regarding existing RBI's patent portfolio. Additionally, training missions allowed deep insights and fostered practical knowledge for supporting IP and knowledge transfer identification, principles & procedures, and commercialization, enhancing overall knowledge at RBI in regard to certain aspects of IP management.

A brief overview over Personnel, man-months per person, and short description of tasks is shown in table below:

WP 4	**Human resources - Permanent staff**	Person/ month	Task	Description
1	Marin Roje	6.9	All tasks WP4	Workpackage leader Coordination of WP4; prepare deliverable reports; attend PMB meetings
2	Ivica Kopriva	5.4	T4.1 T4.3 T4.4 T4.5	Elaborate IP management plan; patent searches, filing of patent (or other IPR) applications; Presenting research and innovation capacity to business community/end-users
3	Dušica Vujaklija	0.2		
	Recruitment			
1	Slavica Tomšić Škoda	12	T4.1 T4.2 T4.3 T4.5	supportive measures for recognizing emerging IP, implemention of the IP management plan; link between IRB scientists and office for IPR; IPR identification, IPR counselling and advising, IPR protection and patenting service

The scope addressed is most easily seen from the following summaries of the resources associated with WP4.

Table 4.1: Person month summary for WP4

Person Months WP4	Permanent Staff	Temporary Staff	Total
Total Foreseen	16.0	12.0	28.0
Used in Period 1	3.9	0.0	3.9
Used in Period 2	8.7	12.0	20.7
Used in Period 3	0.0	0.0	0.0
Balance	3.4	0.0	3.4

Table 4.2: Financial summary for WP4

Personnel	Permanent staff, PM 3,9	4	1	12,649.22
Travel	IPR training course	4	1	4,150.30
Personnel	Permanent staff, PM 8,7	4	2	28,122.23
Personnel	Recruitment - IP manager, PM 12	4	2	30,238.79
Travel	IPR training course	4	2	1,672.91
Other	Innovation costs - Patent applications	4	2	9,953.94
Total	Combined	4	All	86,787.39

1.1.3.5 Work Package 5: Dissemination & Visibility Activities

The objectives of WP5 were to: (1) Increase visibility of RBI and stimulate its promotion as centre of excellence in Molecular Biosciences in South Eastern Europe, (2) Disseminate InnoMol objectives and results addressing specific stakeholder's priorities, (3) Demonstrate capabilities of new research pipeline to offer new molecular solutions in research and development, and (4) Stimulate networking and realisation of synergies with other European initiatives related to InnoMol.

A brief overview over Personnel, man-months per person, and short description of tasks is shown in table below:

WP 5	**Human resources - Permanent staff**	Person/ month	Task	Description
1	Ivanka Jerić	13.6	All tasks WP5	Workpackage leader Coordination of WP5; prepare deliverable reports; attend PMB meetings
2	Tihomir Balog	9.1	T5.1 T5.2 T5.3 T5.4 T5.5 T5.6 T5.7 T5.8 T5.9	Collecting information about partners and institutions, publications, project staff, equipment and services provided by the project with national and European associations and societies; Organization of 5 workshops and 2 conferences (communication with speakers, preparation of agenda, Book of abstracts, contacting potential workshop audiences etc). Promotion of workshops activities through Web based informational services, distribution of information material in collaboration with PR Office; collecting reports for Conferences and Workshops will agenda, list of participants, book of abstracts; reports for participation at conferences. Supporting RBI staff conference participation; managing application, selection and reports collection
3	Marija Abramić	2.1		
4	Sonja Levanat	5.7		
5	Andreja Ambriovic	5.4		
6	Hrvoje Fulgosi	10.7		
7	Dragan Gamberger	7.5		
8	Sanja Tomić	3.8		
9	Jelena Knežević	2.2		

More detail about the activities can be found in section 1.1.4.1 while the resource summary is contained in the two subsequent tables.

Table 1.1.3.5.1: Person month summary for WP5

Person Months WP5	Permanent Staff	Temporary Staff	Total
Total Foreseen	66.0	12.0	78.0
Used in Period 1	22.5	2.4	24.9
Used in Period 2	37.6	5.6	43.2
Used in Period 3	0.0	0.0	0.0
Balance	5.9	4.0	9.9

Table 1.1.3.5.2: Financial summary for WP5

Cost Category	Explanation	WP	Period	Amount EUR
Personnel	Permanent staff, PM 22,5	5	1	60,944.21
Personnel	Recruitment - web programmer, PM 2,4	5	1	4,293.91
Subcontracting	Project logo and visual identity development	5	1	913.58
Travel	IRB staff at international conferences	5	1	38,980.91
Consumables	Consumables	5	1	44,997.56
Other	Workshops and conference organization	5	1	10,738.06
Other	Promotional activities and publications	5	1	11,403.68
Personnel	Permanent staff, PM 37,6	5	2	104,898.87
Personnel	Recruitment - web programmer, PM 5,6	5	2	10,391.40
Subcontracting	Conference web page development service	5	2	201.32
Travel	Participation of IRB staff at conferences	5	2	33,159.92
Consumables	Consumables	5	2	29,948.09
Other	Workshops and conferences organization	5	2	68,208.33
Other	Promotional activities and publications	5	2	5,980.02
Total	Combined	5	All	425,059.87

1.1.3.6 Work Package 6: Management

The primary objective of the Management Work Package was to ensure the smooth running of the project. An important role in this respect is the coordination between the project scientists, on one hand, and the RBI's administrative services, on the other. Namely, in order to respect the local practices, regulations, and legal framework in project implementation, frequent intervention and problem-solving is required by the WP6 team. Particular attention was paid to procurement and employment procedures as well as ensuring all appropriate documentary evidence (in collaboration with the Office for Projects) was generated and stored in an adequate manner.

A brief overview over Personnel, man-months per person, and short description of tasks is shown in table below:

WP 6	Human resources - Permanent staff	Person/ month	Task	Description
1	David M. Smith	6.1	All tasks WP6	Workpackage leader Coordination of WP6; prepare deliverable reports; attend PMB meetings
2	Oliver Vugrek	20.9	T6.1 T6.2 T6.3 T6.4 T6.5 T6.7	Project Management; Hiring Administrative assistant; Financial and administrative coordination

	Administrative / Support staff	Person/ month		
1	Igor Peršin	39	T6.3 T6.6	Financial and administrative support; Financial and administrative coordination; contract management, coordination with other administrative departments like Accounting, Human Resources and the Procurement Department.

The resources required for the completion of WP6 are summarized below.

Table 1.1.3.6.1: Person month summary for WP6

Person Months WP6	Permanent Staff	Temporary Staff	Total
Total Foreseen	35.0	39.0	74.0
Used in Period 1	14.9	15.0	29.9
Used in Period 2	14.4	18.0	32.4
Used in Period 3	5.9	6.0	11.9
Balance	-0.2	0.0	-0.2

Table 1.1.3.6.2: Financial summary for WP6

Cost Category	**Explanation**	**WP**	**Period**	**Amount EUR**
Personnel	Permanent staff, PM 14,9	6	1	37,744.19
Personnel	Recruitment – admin. assistant, PM 15	6	1	24,156.14
Travel	Thematic workshop in Brussels	6	1	374.51
Personnel	Permanent staff, PM 14,4	6	2	33,929.04
Personnel	Recruitment – admin. assistant, PM 18	6	2	41,353.75
Subcontracting	CFS for Period 1	6	2	5,005.46
Personnel	Permanent staff, PM 5,9	6	3	15,758.37
Personnel	Recruitment – admin. assistant, PM 6	6	3	13,484.44
Subcontracting	CFS for Period 2	6	3	3,578.53
Total	Combined	6	All	175,384.43

1.1.3.7 Work Package 7: Ex-Post Evaluation

The objectives of WP7 were to (1) provide an efficient interface between InnoMol, independent experts and regional authorities and (2) to stimulate the uptake of recommendations of independent evaluators for preserving emerging excellence for the Molecular Biosciences.

A brief overview over Personnel, man-months per person, and short description of tasks is shown in table below:

WP 7	**Human resources - Permanent staff**	Person/ month	Task	Description
1	Miroslav Plohl	3	All tasks WP7	Workpackage leader Coordination of WP7; prepare deliverable reports; attend PMB meetings
2	Damir Kralj	3	T7.1 T7.2 T7.3	Secure efficient communication between IRB and experts for Ex-Post evaluation; Organise visits of independent international experts

Apart from attendence of the Game of Epigenomics conference in Dubrovnik in April 2016, the evaluators made altogether 3 trips to Croatia:

Dubrovnik: 25. - 27. 4. 2016

Zagreb: 19. - 22. 6. 2016 and 25. - 27. 10. 2016

Cost breakdown by expert: Roland Contreras - EUR 3.451,03; Tonis Timmusk – EUR 3.144,14; Jerzy Duszynski (missed second trip to Zagreb) – EUR 964,26; Stefan Echinger – EUR 3.030,56

The resources required for the completion of WP7 are summarized below.

Table 1.1.3.7.1: Person month summary for WP7

Person Months WP7	Permanent Staff	Temporary Staff	Total
Total Foreseen	6.0	0.0	6.0
Used in Period 1	0.0	0.0	0.0
Used in Period 2	0.0	0.0	0.0
Used in Period 3	6.0	0.0	6.0
Balance	0.0	0.0	0.0

Table 1.1.3.7.2: Financial summary for WP7

Cost Category	**Explanation**	**WP**	**Period**	**Amount EUR**
Travel	Ex-Post experts costs	7	2	1,559.71
Personnel	Permanent staff, PM 6	7	3	20,210.02
Travel	Ex-Post experts travel costs	7	3	10,589.98
Other	Ex-Post experts fees	7	3	29,733.57
Total	Combined	7	All	62,093.28

1.1.3.8 Financial summary for InnoMol project

The overall summary of the reosurces commited to the InnoMol project are shown below:

Table 1.1.3.8.1 Person month summary for the InnoMol project

Person Months InnoMol	Permanent Staff	Temporary Staff	Total	Secondments RBI Staff
Work Package 1	10.4	330.0	340.4	0.0
Work Package 2	44.7	0.0	44.7	76.7
Work Package 3	40.3	0.0	40.3	0.0
Work Package 4	12.6	12.0	24.6	0.0
Work Package 5	60.1	8.0	68.1	0.0
Work Package 6	35.2	39.0	74.2	0.0
Work Package 7	6.0	0.0	6.0	0.0
Total Work Packages	209.3	389.0	598.3	76.7
Total Foreseen	215.0	378.0	593.0	101.5
Balance	5.7	-11.0	-5.3	24.8

Table 1.1.3.8.2: Financial summary for the InnoMol project

InnoMol - EUR	Personnel cost	Subcontracting	Other direct cost	Indirect cost	TOTAL COST
Work Package 1	1,027,337.56	0.00	0.00	71,913.63	1,099,251.19
Work Package 2	105,231.67	0.00	517,764.83	43,609.75	666,606.25
Work Package 3	105,082.46	0.00	1,638,473.80	122,048.94	1,865,605.20
Work Package 4	71,010.24	0.00	15,777.15	6,075.12	92,862.51
Work Package 5	180,528.39	1,114.90	243,416.58	29,676.15	454,736.02
Work Package 6	166,425.93	8,583.99	374.51	11,676.03	187,060.46
Work Package 7	20,210.02	0.00	41,883.26	4,346.53	66,439.81
TOTAL	1,675,826.27	9,698.89	2,457,690.12	289,346.15	4,432,561.43

1.1.3.9 Ethics

The Ethics Committee of KBC Zagreb (KBC, Clinical Hospital Center) approved usage of fibroblast cell lines (skin cells) on two occasions, the latest at the 70th meeting of the Ethical Board of the KBC held on the 21st of November, 2016 in order to extend research within the FP7 project InnoMol. Cells were extracted from lower arm of AHCY deficient patients that are in treatment at the pediatrics department of the KBC Zagreb for analysis of gene expression using DNA and RNA from such cell lines.

Initially, research was carried out in frame of project 'AHCY deficiency: molecular mechanisms of a new disease', proposed to the Ministry of Science, Education and Sports of Croatia.

Lead scientist is Oliver Vugrek, from the Department of Molecular Medicine at the Ruđer Boskovic Institute, and as follow-up during the InnoMol project. InnoMol enabled RNA analysis, which during previous funding schemes was not feasible due to lack of sophisticated equipment. InnoMol enabled RNAseq on the new NGS instruments, thereby advancing knowledge on AHCY deficiency transcriptomics.

Overall, research on patient cell lines seems to be in compliance with ethical principles, whereas it is possible that inappropriate activities or inappropriate exploitation may occur. However, underlying project can be carried out without endangering ethical rules (scientific integrity, collegiality, privacy of probands, societal responsibility, animal care, etc), for which the Principal Investigator guarantees with his signature. In terms of privacy of probands, one has to mention that cells have been retrieved a couple of years ago with the consent of the patients parents. Also, parents have been informed that samples will be used for research purposes to clarify pathological processes, with approval from the lead clinician who is in charge of the patients, thereby following Croatian legislative rules. The opinion is that such approach is sufficient as patients are concerned.

In terms of DNA analysis of other samples the opinion is that the clinics should have a positive attitude as research will help in fully understanding the disease. Thus, only competent medical doctors may be the link between Patient and Researcher. If there are future samples from foreign countries it is recommended that samples be treated by rules established in originating countries. The researcher needs to consider to focus on investigating the disease in a way that accidental findings are first discussed with competent staff or lead clinicians in order to find the best solution for further treatment of patients.

1.1.4 Potential impact

Significant impacts are expected in the three worlds “Medicine”, “Biology” and “Chemistry”.

1. InnoMol featured partnering with 33 out of 36 envisaged European high-profile organizations. Undoubtedfully, InnoMol networking should lead to a better integration of the Ruđer Bošković Institute (RBI) in the ERA. On one hand, partners have already a well established network of collaborators. RBI on the other hand will continue to broaden and tighten networking with groups elsewhere in Europe through the existing network of partners, and beyond. To do so, RBI offers several model system for Epigenetics and methylome research, such as common cancers (breast, lung, colon), a new human disease discovered recently, and not available elsewhere in the world (AHCY deficiency), and Neurodegenerative Diseases (Alzheimer, PTSD). Thus, InnoMol will expand RBI activities to new techniques and skills within the Epigenomics field to make it more competitive in contracting with national and international organizations. Importantly, secondees will be able to capitalize upon contacts with leading experts in the field (at partnering organizations). Being integrated in ERA will be important for developing their careers as future group leaders. Further, partners MPI, IRI, HUGI and CEINGE are dynamic actors in the methylation field and highly enthusiastic to collaborate on basis of available model systems. Upgrading of RTD capacities and capabilities through community support should expose RBI as attractive partner in the ERA for future partnerships. Networking with partner institutions working on state-of-the art platforms for eScience and bioinformatics will initiate new scientific collaborations and increase chances to participate in Horizon 2020 projects. Know-how on construction of semantically enabled knowledge bases and automated workflows for data analytics should provide an effective means for merging and intelligent utilization of data flowing from the InnoMol experimental platform, with a multitude of publicly available data and knowledge sources.
2. InnoMol will upgrade the RTD capacity and capability at RBI through improving human resources by future exchange of Know-How and knowledge with partnering organizations of high profile. Positive side effects are fostering European thinking. Recruitment of experts within the S&T domain of RBI will lead to enhancement of scientific expertise that is inadequately covered by present RBI staff, and will reverse 'brain drain' effects in South Eastern Europe. Thus, bringing together a critical mass of experts in molecular biosciences research, bioimaging, array technology and bioinformatics to complement and upgrade RTD capacity and capability is important for the global goal of RBI to become a leader in the Molecular Biosciences in SEE region. Quality of research carried out by RBI researcher will be enhanced through the assembled InnoMol research pipeline that is unique in Croatia, and

probably is one of its kind in South Eastern Europe. The new platform represents a major leap for RBI capabilities towards Molecular Biosciences research, as it covers Genomics, Proteomics, Bioimaging and Bioinformatics, and High-Throughput technologies from third generation sequencing to array technology, mass spectrometry, spectroscopic techniques, advanced microscopy, biomolecule modeling, and active compound design. The technological platform gives Scientists, Clinical Physicians and Research managers access to basic research and clinical application, and diagnosis, whereas RBI will provide S&T support and expertise to suit needs of the scientific community in order to transfer technology and Know-How. Importantly, the RTD platform is based on an 'open source' concept enabling services and use for commercial activities, to all major Croatian research laboratories and industries, and the wider region (SEE). Efficient crosslinking of Genomics and Proteomics will excel RBI RTD capacity beyond the State-of-the-Art. The envisaged outcome is that RBI will become a leader in South Eastern Europe in Molecular Biosciences.

3. InnoMol will lead to improved research capacity at RBI for increased contribution to regional economic and social development. Increasingly, academic institutes and biotechs are forging alliances with the industry to develop and commercialise their products. There are significant market opportunities for new epigenetic therapies and biomarkers in a variety of disease areas although the most advanced area is oncology. The success of the first generation broad spectrum products should ensure future investment in this complex and multidisciplinary scientific field. Impacts are expected through partnership between RBI and clinical institutions due to experience in rare inherited diseases such as AHCY deficiency that was discovered in 2004 with RBI involvement and expertise in molecular diagnostics. By joining forces, new diagnostic approaches for similar disease may be developed that are based on State-of-the-Art approaches, for example Next-Generation-Sequencing (NGS). Custom prototype genetic panels of any kind for genetic disease analysis can be validated on the advanced genetics platform established through InnoMol.
4. InnoMol will improve significantly the potential of RBI to participate in Horizon 2020 projects. Concretely, featuring a innovative research pipeline will raise interest among the ERA to collaborate with RBI, and to include RBI as dynamic partner in projects lead by high-profile entities within Europe. Enhanced human resources including recruited experts operating the new platform will foster RBI engagement in the field of protein-protein and protein-DNA interactions, which is a particular topic in several Horizon 2020 calls. Thus, participation in Horizon 2020 projects at higher frequency is expected. At present moment, InnoMol is in line with the Horizon 2020 HEALTH programme and other themes such as

European Technology Platforms (ETPs), the European Light Microscopy Initiative (ELMI) and, in particular, the European Strategic Forum on Research Infrastructure (ESFRI). Importantly, with the new platform, RBI might become an attractive partner for Horizon 2020 Calls targeting SMEs (Research to the benefit of SMEs, outsourcing initiatives etc.). Additionally, increased potential to apply to Horizon 2020 programme and its successors will contribute to sustainability of the project beyond project closure.

Finally, RBI will act a role model for success in FP7, and provide motivation for other groups in Croatia to follow its steps to raise overall RTD capacities elsewhere in the region, and at RBI.

The InnoMol Team: *(From left to right) Oliver Vugrek, David Smith, Maja Herak Bosnar, Marijeta Kralj, Marin Roje, Ivanka Jerić, Igor Weber, Miroslav Plohl, and Ivo Piantanida*

1.1.4.1 Main dissemination activities

A large amount of effort was expended in increasing the visibility of the InnoMol project and, with it, the RBI as a whole. On one hand, InnoMol team members showed a strong level of participation at professional (as opposed to scientific) meetings, conferences and outreach events. A full list of these efforts can be found in Table, and subsequently **Table** listing the scientific publications supported by InnoMol. A significant example of such dissemination was the organization of the 'Days of European Funds', hosting 3 ministers of the Croatian Government (Ministry for Regional Development, Science, Education and Sport, Ministry of Economy), and the **RBI Open Days** in **2015,** and **2016,** with 2000 and 3650 participants, respectively.

RBI Open days

InnoMol organized 4 workshops involving InnoMol partners, and a final workshop was held including only InnoMol team members. Two conferences, the 3rd Croatian microscopy conference, and the Game of Epigenomics conference have been thoroughly planned and organized in 2015 and 2016 as envisaged in the work plan. Dissemination and visibility activities have been at the highest standards with dozens of TV and radio appearances, press releases, leaflets, flyers and posters, and presentations at numerous events.

During the project, more than 30 articles were published in the press, together with more than a dozen TV and radio announcements. More than 60 Croatian web portals covered the news on the InnoMol topic targeting different public. The biggest reach was among business and general public. The messages conveyed by the press release successfully reached media and targeted public.

The active participation of RBI researchers at international conferences and meetings was significantly enhanced with dozens of researches attending altogether 41 national or international meetings during the project.

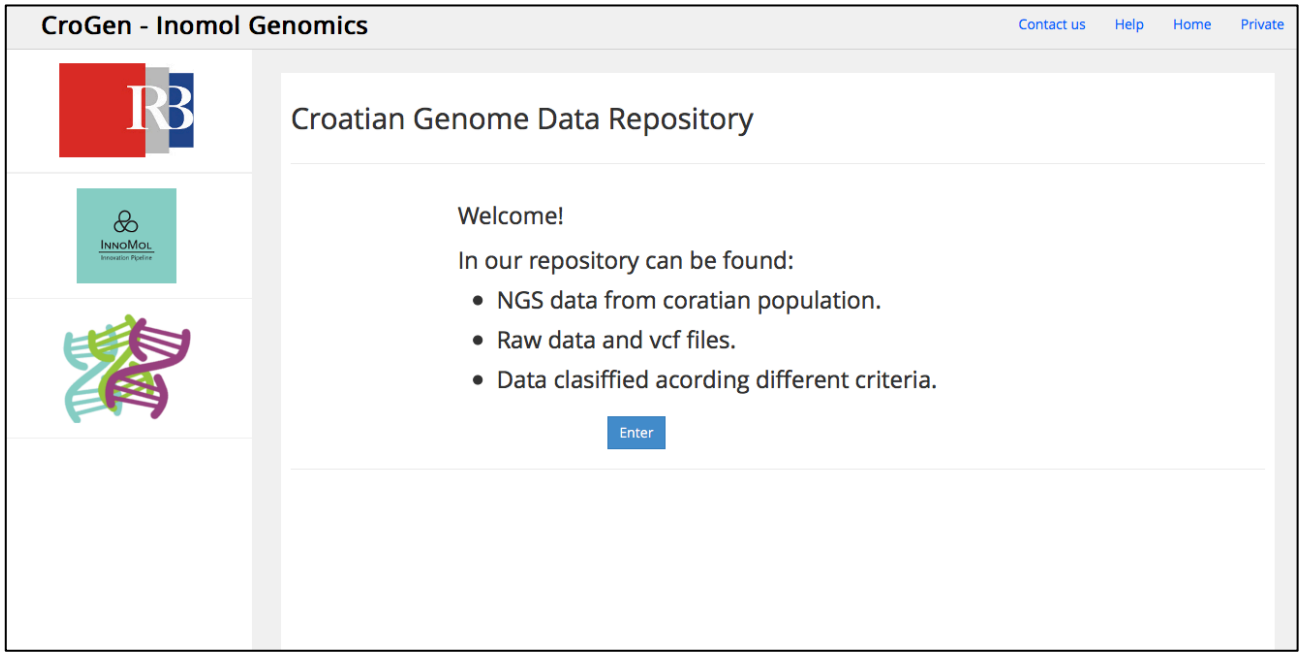
Until now, 43 scientific publications have been released acknowledging support received by the European FP7 programme for InnoMol project, and dozen more publications are in preparation.

Also, a **promotional movie** has been generated that can be accessed through the InnoMol webpage (www.innomol.eu).

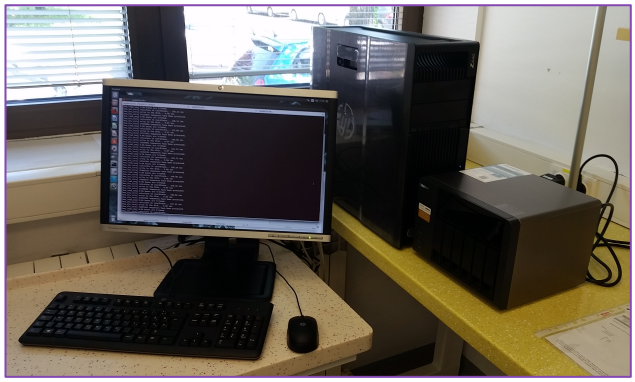
1.1.4.2 Exploitation of results

Apart from the two patents mentioned below Section B, exploitation is expected to follow the guidelines set out in the InnoMol IPR Management Plan. Beyond this potential avenues for exploitation are itemized below.

Recruitment has created a productive, state-of-the-art environment, where for example new bioinformatics tools have been designed so experimental scientists can extract relevant information from proteomics experiments and combine it with data available in globally available databases (Munoz Torres et al., 2016). Also, featuring genomics, a Next Generation Sequencing (NGS) data repository, 'CroGen', has been created that allows easy access to NGS sequence data. The repository is a collaborative and freely accessible project at http://genomics.innomol.eu, where scientists can share their data after previous registration.



Data handling and storage is available as well through the workstation and NAS equipment (20 TB).



2 x 8 Core Workstation with 128 GB RAM and 20TB NAS

Other developed bioimaging tools aid in protein-protein interaction studies and live-cell imaging (Lepur et al., 2016).

Bridging private-public partnerships in research are crucial in particular for exploitation and contribution to regional economy.

Examples for exploitation are shown below:

Microarray technology

- Comparative Genomic Hybridization (oligo aCGH) **(**Clinical hospital centre Zagreb, Department of Pediatrics, corresponding physician Dr. Kristina Crkvenac Gornik), and,
- MicroRNA analysis **(**University of Rijeka, Department of Biotechnology, corresponding scientist Dr. Igor Jurak).

Custom array production has potential for 'Spin-off' due to growing demand for DNA and protein arrays in a significantly growing market for array technology. Also, Multiplier effects such as involvement of Industry, possibly in cooperation with EUREKA, and synergies arising through other instruments such as ESIF (European Structural and Investment Fund) might arise. Partnering with industry will help RBI for evaluating all possibilities for commercialisation of array technology in regard to methylation research, and technology transfer towards industry.

Next-Generation-Sequencing technology

Following services are available at present moment, with a constantly growing list for future applications:

- Whole genome resequencing, or targeted resequencing by library enrichment
- RNA-Seq (whole transcriptome or small RNA).
- Exome sequencing
- Tumor panel sequencing

A typical price calculation is shown below, and reflects on three types of pricing:

- RBI internal prices (only for RBI employees) – research only
- Academia
- Private sector, industry

Calculation for targeted re-sequencing (BRCA1,2 genes):

BRCA1,2 (BIOO Scientific chemicals, 6 samples Miniseq; FFPE	**RBI**	**Academia**	**Private sector**
Material costs			
Overall costs for chemicals (8 samples) HRK	6.450,00 kn	6.450,00 kn	6.450,00 kn
Cost per sample	806,25 kn	806,25 kn	806,25 kn
FlowCell 6 samples	5.285,28 kn	5.285,28 kn	5.285,28 kn
Costs chemicals (per sample)	880,88 kn	880,88 kn	880,88 kn
Labor costs			
Labor costs (129 hours)	1.820,00 €	1.820,00 €	1.820,00 €
Labor costs per kit (0,5h) EUR	7,05 €	7,05 €	7,05 €
Labor costs per kit (0,5h) HRK	53,97kn	53,97kn	53,97kn
Amortization (1000 samples per year)	306,00 kn	306,00 kn	306,00 kn
Price for RBI	**2.047,10 kn**	**2.047,10 kn**	**2.047,10 kn**
Overhead 30% (42%)	-	877,32 kn	877,32 kn
Price for Academia	**-**	**2.924,42 kn**	2.924,42 kn
25% VAT	**-**	731,10 kn	-
Price for Academia incl. VAT	**-**	**3.655,52 kn**	-
Margin costs	**-**	**-**	1.169,77 kn
Price for private sector	**-**	**-**	4.094,19 kn
25% VAT	-	-	1.023,55 kn
Price for private sector incl. VAT	**-**	**-**	**5.117,73 kn**

Several major contracts have been realized using fully operational genomics platform, which is explained in detail in Deliverable 3.3 (Receipts).

Genomics platform turnover is generated through 3 channels:

a) Services provided to the users within the RBI

   Those services are ordered by RBI scientist, and are research purpose only.

b) Services provided to further scientific community of the Republic of Croatia

   Those services are ordered by scientists from other academic institution in Croatia. Results are for research purposes only.

c) Services provided to the market

   Those services are provided to physical persons directly or to public or private health care institutions. Results are providing insights in disease pathology and will contribute to establishment of exact diagnosis or recommendations for targeted therapy.

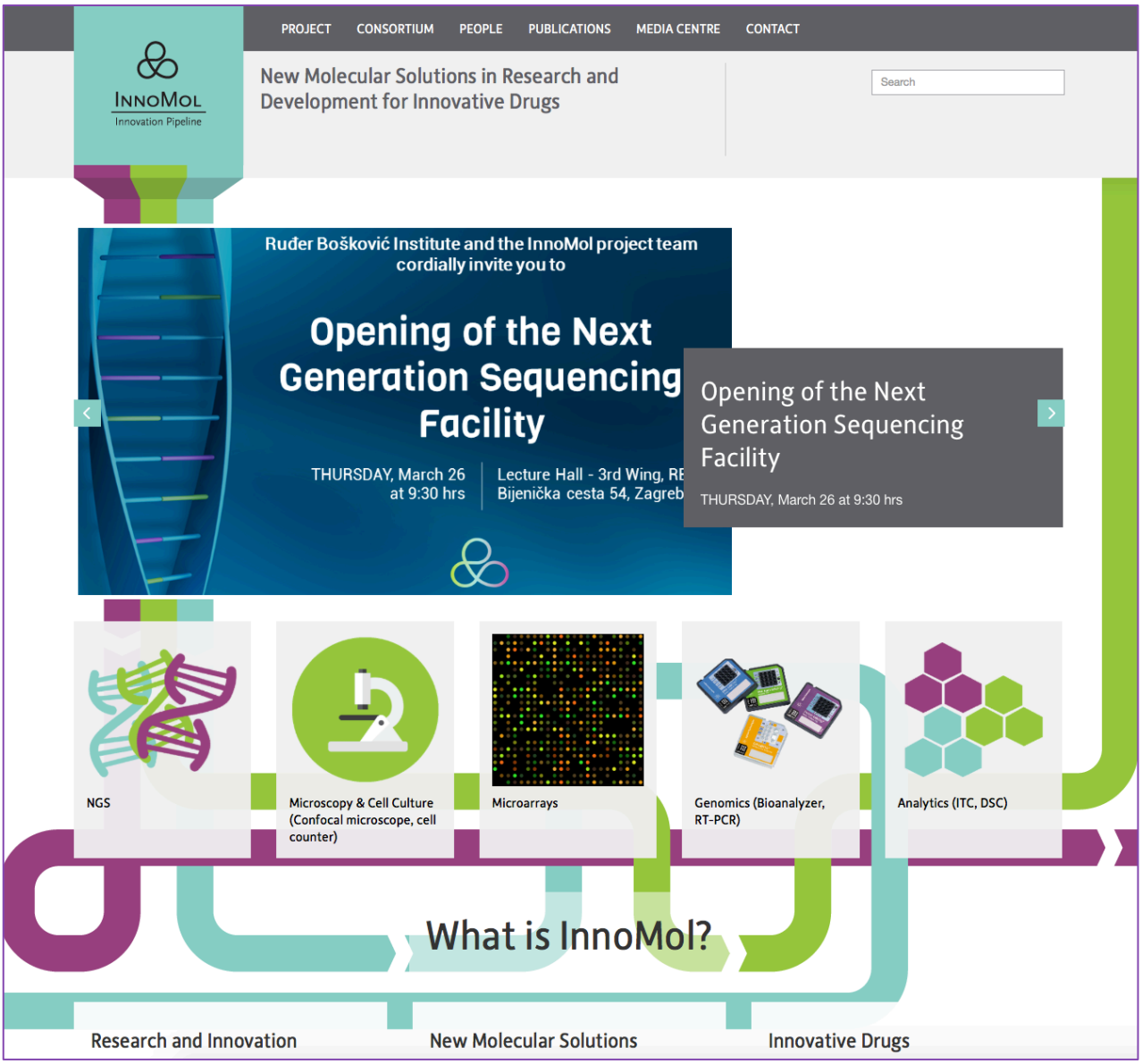
Potential for creation of Start-up company:

InnoMol researchers are in the process of creating a start-up for genomic testing, which may launch early 2017. The InnoMol genetics platform allows affordable genetic testing for a wide range of diseases, including cancer, cardiovascular diseases and inherited diseases. Genomic testing will significantly increase capabilities of the Croatian health system for precise and personalized medicine.. Eventually, some of this testing will be integrated by the Croatian Health Insurance system starting in 2017, such as evaluation of risk factors for breast and ovarian cancer, and testing on a regular basis may be performed by either collaboration with RBI or third parties.

Besides advanced diagnostics, RBI now has the most advanced genomics platform, which will allow R&D for genetic testing, for example development for custom–tailored tests for any genetically assessable disease. Such a next-generation-sequencing market has huge potential in several respects. For example, job creation for certain profiles of scientists such as bioinformaticians, and data analysts, but also experts in product development, molecular biologists and biochemists. The RBI is also collaborating with SMEs to develop new clinical diagnostics approaches. Finally, InnoMol is opening up new avenues for R&D, as well as serving as an example for entrepreneurship in Croatia and the surrounding region, thanks to its creation of start-ups.

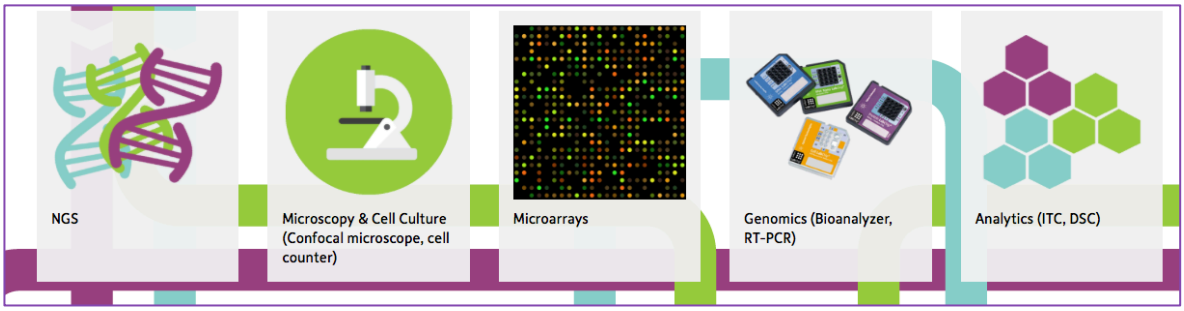
1.1.5 Project public website

The InnoMol project public websites is available at www.innomol.eu. As the project developed, it became clear that to be able to a make more attractive and functional web page and to increase the visibility of project activities, new functionality was added throughout the project life, thereby allowing fast access to particular services of the InnoMol pipeline.



Screenshot of InnoMol Homepage

Menu buttons as shown below were integrated into the webpage:



Screenshot of part of InnoMol webpage featuring menu buttons (www.innomol.eu)

Also, crucial exploitable sevices such as the NGS services were subdivided into several applications, easily accessible and enriched with informative content.

'Clickable' menu buttons for the NGS services on InnoMol webpage

1.2 Use and dissemination of foreground

Green and gold model

Peer-reviewed scientific publications will be either accessible through the so-called gold model, or the green model of open access. Namely, the RBI has an excellent library service, with a certain budget in order to subscribe to most common used publishers and databases important for scientific research. The library personnel take care about published work from RBI researchers and archives articles in the **RBI online repository**. Access is granted usually after publication unless there are rigid restrictions of some scientific publishers.

Section A - LIST OF SCIENTIFIC (PEER REVIEWED) PUBLICATIONS

This section describes the dissemination measures, including the list of scientific publications relating to foreground. **The content will be primarily available in the public domain** thus demonstrating the added-value and positive impact of the project on the European Union.
Until now, 43 scientific publications have been released acknowledging support received by the European FP7 programme for InnoMol project, and a dozen more publications are in preparation.

LIST OF SCIENTIFIC (PEER REVIEWED) PUBLICATIONS, STARTING WITH THE MOST IMPORTANT ONES										
No.	Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publication	Relevant pages	Permanent identifiers	Is/Will open access provided to this publication?
1	The landscape of microbial phenotypic traits and associated genes	Supek, F.	Nucleic acids research	22 per year	OXFORD UNIV PRESS	England	2015		ISSN: 0305-1048	yes
2	Thermodynamic fingerprints of ligand binding to human telomeric G-quadruplexes,	Lah, J	Nucleic Acids Res	22 per year	OXFORD UNIV PRESS	England	2015	10376-10386	ISSN: 0305-1048	yes
3	Extensive Complementarity between Gene Function Prediction Methods, Bioinformatics	Supek, F.	Bioinformatics	24 per year	OXFORD UNIV PRESS	England	2015		ISSN: 1367-4803	no
4	Liver transplantation for treatment of severe S-adenosylhomocysteine hydrolase deficiency	Strauss, KA	Mol Gen and Metabolism	monthly	ACADEMIC PRESS INC ELSEVIER SCIENCE	USA	2015	44-52		yes
5	Combination of cyclopamine and tamoxifen promotes survival and migration of MCF-7 breast cancer cells - interaction of Hedgehog-Gli and Estrogen receptor signaling pathways	Levanat, S.	PLoS One	online	PUBLIC LIBRARY SCIENCE	USA	2014	e114510		yes
6	Abnormal hypermethylation at imprinting control regions in patients with S-adenosylhomocysteine hydrolase (AHCY) deficiency	Vugrek, O	PLoS ONE	online	PUBLIC LIBRARY SCIENCE	USA	2016	e0151261		yes
7	Increased Adenovirus Type 5 Mediated Transgene Expression Due to RhoB Down-regulation	Ambriovic-Ristov, A.	PLoS One	online	PUBLIC LIBRARY SCIENCE	USA	2014	e86698		yes

	Integrin αvβ3 Expression in Tongue Squamous Carcinoma Cells Cal27 Confers Anticancer Drug Resistance Through Loss of pSrc(Y418)	Ambriovic-Ristov, A.	Biochimica et Biophysica Acta (BBA) - Molecular Cell Research	monthly	ELSEVIER SCIENCE BV	Netherlands	2016	1969–1978		yes
8	GSK3β and GLI3 play a role in activation of Hedgehog-Gli pathway in human colon cancer – targeting GSK3β downregulates the signaling pathway and reduces cell proliferation.	Levanat, S.	BBA-Molecular Basis of Disease	monthly	ELSEVIER SCIENCE BV	Netherlands	2015	2574-84	ISSN: 0925-4439	yes
9	Synthesis and surface recognition ability evaluation of a liposome incorporated novel mono and multivalent mannosyl-lipoconjugates.	Frkanec, R.	Int Journal of Pharmaceutics	21 per year	ELSEVIER SCIENCE BV	Netherlands	2016			no
10	Nme family of proteins -clues from simple animals	Herak Bosnar, M	N-S Arch Pharmacol	monthly	Springer	Germany	2015	133-142	ISSN: 0028-1298	no
11	Functional and Structural Characterization of FAU Gene/Protein from Marine Sponge Suberites domuncula.	Ćetković, H	Mar Drugs.	monthly	MDPI AG	Switzerland	2015	4179-96	ISSN: 1660-3397	no
12	Interaction of environmental contaminants with zebrafish uptake transporter Oatp1d1 (Slco1d1).	Smital, T	Toxicol. Appl. Pharmacol	24 per year	ACADEMIC PRESS INC ELSEVIER SCIENCE	USA	2014	149-158	ISSN: 0041-008X	no
13	GGA1 overexpression attenuates amyloidogenic processing of APP in NPC1-null cells	Hecimovic, S.	Biochemical and Biophysical Research Communications	weekly	ACADEMIC PRESS INC ELSEVIER SCIENCE	USA	2014	160-5	ISSN: 0006-291X	yes
14	Quantitative imaging of Rac1 activity in Dictyostelium cells with a fluorescently labelled GTPase-binding domain from DPAKa	Weber, I	Histochemistry and cell biology	monthly	Springer	Germany	2016		ISSN: 0948-6143	yes

	kinase									
15	An effective approach for annotation of protein families with low sequence similarity and conserved motifs: identifying GDSL hydrolases across the plant kingdom	Vujaklija, D.	BMC Bioinformatics	online	BIOMED CENTRAL LTD	England	2016		ISSN: 1471-2105	yes
16	Prominent role of exopeptidase DPP III in estrogen-mediated protection against hyperoxia in vivo	Balog, T.	Redox Biol.	online	ELSEVIER SCIENCE BV	Netherlands	2016	149–159	ISSN: 2213-2317	yes
17	Elucidation of the binding sites of two novel Ru(II) complexes on bovine serum albumin.	Cindrić, M.	Journal of Inorganic Biochemistry	monthly	ELSEVIER SCIENCE INC	USA	2016	89–95	ISSN: 0162-0134	yes
18	Impact of α-hydrazino acids embedded in short fluorescent peptides on peptide interaction with DNA and RNA	Jerić, I.	*Org. Biomol. Chem*	24 per year	ROYAL SOC CHEMISTRY	England	2016		ISSN: 1477-0520	yes
19	Bisphenanthridinium – adenine conjugates as fluorescent and CD reporters for fine structural differences in ds-DNA/RNA and ss-RNA structures	Piantanida, I.	Supramolecular chemistry	monthly	TAYLOR & FRANCIS LTD	England	2016	267-274	ISSN: 1061-0278	yes
20	Offset-Sparsity Decomposition for Enhancement of Color Microscopic Image of Stained Specimen in Histopathology: Further Results	Kopriva, I.	Proceedings of the SPIE Medical Imaging Symposium 2016 - Digital Pathology Conference	online	SPIE	USA	2016	979124-1 to 8		no
21	Nonlinear Sparse Component Analysis with a Reference: Variable Selection in Genomics and Proteomics	Kopriva, I.	Lecture Notes in Computer Science	online	Springer	Germany	2015	168-175		no

	A STEERABLE FILTER BANK APPROACH TO ENDMEMBERS ESTIMATION IN IMAGING SPECTROSCOPY	Kopriva, I.	IEEE International Geoscience and Remote Sensing Symposium	online	IEEE	USA	2015	1773-1776		no
22	ERROR ANALYSIS OF LOW-RANK THREE-WAY TENSOR FACTORIZATION APPROACH TO BLIND SOURCE SEPARATION	Kopriva, I.	IEEE International Conference on Acoustics, Speech, and Signal Processing	online	IEEE	USA	2014	3186-3190		no
23	Reconstruction of sparse signals from highly corrupted measurements by nonconvex minimization	Filipović, M.	IEEE International Conference on Acoustics, Speech, and Signal Processing	online	IEEE	USA	2014	3395-3399		no
24	Clusters of male and female Alzheimer's disease patients in the Alzheimer's Disease Neuroimaging Initiative (ADNI) database	Gamberger, D.	Brain Informatics	online	Springer	Germany	2016		ISSN: 2198-4018	yes
25	Identification of gender specific biomarkers for Alzheimer's disease.	Gamberger, D.	Brain Informatics and Health	book	Springer	Germany	2015	57-66		no
26	The role of conserved Cys residues in Brassica rapa auxin amidohydrolase: the Cys139 is crucial for the enzyme activity and the Cys320 regulates enzyme stability	Salopek-Sondi, B	Physical Chemistry Chemical Physic	48 per year	ROYAL SOC CHEMISTRY	England	2016	8890—8900	ISSN: 1463-9076	yes
27	Advances in peptide-based DNA/RNA-intercalators	Piantanida, I.	Curr Protein Peptide Sci	8 per year	BENTHAM SCIENCE PUBL LTD	U ARAB EMIRATES	2016	127-134	ISSN: 1389-2037	yes

28	Novel synthetic approach to asymmetric monocationic trimethine cyanine dyes derived from N-ethyl quinolinum moiety. Combined fluorescent and ICD probes for AT-DNA labeling	Deligeorgiev T.	J. Lumin	8 per year	WILEY-BLACKWELL	England	2016	70-76	ISSN: 1522-7235	yes
29	Bis-phenanthridinium-adenine conjugates as fluorescent and CD reporters for fine structural differences in ds-DNA/RNA and ss-RNA structures	Piantanida, I.	Supramol Chem	monthly	TAYLOR & FRANCIS LTD	England	2016	267-274	ISSN: 1061-0278	yes
30	Glycine N-methyltransferase deficiency-a member of dysmethylating liver disorders	Barić, I.	JIMD Reports	monthly	Springer	Germany	2016			yes
31	Dicationic derivatives of dinaphthotetraaza[14]annulene: synthesis, crystal structures and the preliminary evaluation of their DNA binding properties	Eilmes, J	Tetrahedron	weekly	PERGAMON-ELSEVIER SCIENCE LTD	England	2015	4163-4173	ISSN: 0040-4020	yes
32	The 1,3-diaryltriazenido (p-cymene) ruthenium(II) complexes with a high in vitro anticancer activity,	Kosmrlj, J	J Inorg Biochem	monthly	ELSEVIER SCIENCE INC	USA	2015	42-48	ISSN: 0162-0134	no
33	Enhancement of antiproliferative activity by phototautomerization of anthrylphenols,	Basaric, N	Photoch Photobio Sci	6 per year	WILEY-BLACKWELL	USA	2015	1082-1092	ISSN: 0031-8655	yes
34	Sensing of Double-Stranded DNA/RNA Secondary Structures by Water Soluble Homochiral Perylene Bisimide Dyes	Wurthner, F.	Chemistry-a European Journal	weekly	WILEY-VCH	Germany	2015	7886-7895	ISSN: 1521-3765	yes
35	Molecular recognition of AT-DNA sequences by the induced CD pattern of dibenzotetraaza[14]annulene (DBTAA)-adenine derivatives	Piantanida, I.	Beilstein J Org Chem	online	BEILSTEIN-INSTITUT	Germany	2014	2175-2185	ISSN: 1860-5397	no

36	A short, rigid linker between pyrene and guanidiniocarbonyl-pyrrole induced a new set of spectroscopic responses to the ds-DNA secondary structure	Piantanida, I.	Org. Biomol. Chem	24 per year	ROYAL SOC CHEMISTRY	England	2015	1629-1633	ISSN: 1521-3765	yes
37	Death by UVC Light Correlates with Protein Damage in Isogenic Human Tumor Cells: Primary Tumor SW480 versus its Metastasis SW620	Radman, M.	J Proteomics Computational Biol		Avens Publishing Group	USA	2016	12		yes
38	Enhancement of antiproliferative activity by phototautomerization of anthrylphenols.	Basarić, N.	Photochem Photobiol Sci	6 per year	WILEY-BLACKWELL	USA	2015	1082-1092	ISSN: 0031-8655	yes
39	Synthesis of new 2-aminoimidazolones with antiproliferative activity via base promoted amino-b-lactam rearrangement	Habus, I.	Tetrahedron	weekly	PERGAMON-ELSEVIER SCIENCE LTD	England	2015	9202 - 9215	ISSN: 0040-4020	no
40	The IQGAP-related protein DGAP1 mediates signaling to the actin cytoskeleton as an effector and a sequestrator of Rac1 GTPases	Weber, I.	Cellular and Molecular Life Sciences				2014	2775-2785		yes
41	A simple optical configuration for cell tracking by dark-field microscopy	Weber, I	Journal of Microbiological Methods	24 per year	SPRINGER BASEL AG	SWITZERLAND	2014	9-11	ISSN: 1420-682X	yes
42	msBiodat Analysis Tool, Big data analysis for high-throughput experiments	Vugrek, O	BioData Mining	online	BIOMED CENTRAL LTD	ENGLAND	2016		ISSN: 1756-0381	yes
43	Gateway-compatible vectors for studying protein interactions using bi-molecular fluorescence complementation (BiFC) and pooled ORFs screening strategy: identification of galectin-3 as new interacting partner of S-adenosyl homocysteine hydrolase	Vugrek, O.	Journal of Biomolecular Screening	10 per year	SAGE PUBLICATIONS INC	USA	2016			yes

Section A2 : LIST OF DISSEMINATION ACTIVITIES

This section describes the dissemination measures other than scientific publications. **The content will be available in the public domain** thus demonstrating the added-value and positive impact of the project on the European Union.

Dissemination and visibility activities have been at the highest standards with dozens of TV and radio appearances, press releases, leaflets, flyers and posters, and presentations at numerous events.

TEMPLATE A2: LIST OF DISSEMINATION ACTIVITIES

NO.	Type of activities	Main leader	Title	Date /Period	Place	Type of audience	Size of audience	Countries addressed
1	*web*	Oliver Vugrek	*www.innomol.eu*	*2013-*		scientific community industry, medias	www	www
2	video	Oliver Vugrek	InnoMol video	2013		scientific community industry, medias	www	CRO
3	presentation	David Smith	Academic Seminar entitled "Excellence in education: a motor for research and innovations"	April 18, 2013	Zagreb, Croatia	scientific community Policy makers, Medias	30	CRO
4	Exhibition/ conference	Ivanka Jerić	MIPRO 2013; 36th international convention on information and communication technology, electronics and microelectronics RIDE Research and education infrastructure dissemination event	May 22, 2013	Opatija, Croatia	scientific community Policy makers, Industry, media	300	international
5	Conference	David Smith	Annual EARTO conference	May 23, 2013	Dubrovnik, Croatia	scientific community Policy makers, Industry, media	200	international
6	Workshop	Ivo Piantanida	„Southeast European Network on Phytochemistry and Chemistry of Natural Products“	May 29-31, 2013	Plovdiv, Bulgaria	scientific community, civil society	100	international, EU
7	conference	David Smith	Conference "Impact of EU funding on the development of Croatian universities"	June 14, 2013	Rijeka, Croatia	scientific community, media, Policy makers	50	CRO

8	workshop	David Smith	Seminar “Croatian Science in the European Union”	July 12, 2013	Zagreb, Croatia	media, Policy makers, scientific community	60	EU
9	presentation	David Smith	Visit of an official delegation of the Foundation for Polish Science (FNP)	July 23, 2013	Zagreb, Croatia	media, Policy makers, scientific community	50	EU
10	workshop	Oliver Vugrek, Igor Weber	Opening of the Confocal Imaging Facility	February 27, 2014	RBI, Croatia	scientific community, media	100	CRO
11	presentation	Marijeta Kralj	Division of Molecular Medicine, seminar	March 6, 2014	RBI, Croatia	scientific communit	80	CRO
12	conference	Adriana Lepur	Festival of Science	April 10,2014	Zagreb, Croatia	Civil Society, media		
13		Tome Antičić	Science Meets Economy	May 6, 2014	Zagreb, Croatia	Civil Society, media, industry, scientific community	120	CRO
14	presentation	Sonja Levanat	Uniroma Laboratory of Molecular Oncology	May 7-17, 2014	Rome, Italy	scientific	20	Italy
15	Conference/ exhibition	Oliver Vugrek	MIPRO 2014; 36th international convention on information and communication technology, electronics and microelectronics RIDE Research and education infrastructure dissemination event	May 26-30, 2014	Opatija, Croatia	media, industry, scientific community	150	regional
16	Presentation	Ivo Piantanida	Section for medicinal and pharmaceutical chemistry, Croatian chemical society	May 27, 2014	RBI, Croatia	scientific community	60	CRO
17	Presentation	Jelena Knežević	German Cancer Research Center	May 27, 2014	Heidelberg, Germany	scientific community	60	Germany
18	Conference	Ivanka Jerić	The Science day in PharmaS	May 30, 2014	Popovača, Croatia	media, industry, scientific community, Policy makers	100	CRO
19	workshop	Oliver Vugrek, Igor Weber	Meeting of the Cro-BioImaging Network	July 3, 2014	RBI Croatia	scientific community	20	CRO

20	conference/ exhibition	Ivanka Jerić, Oliver Vugrek	ZAGREB BUSINESS SUMMIT - Cities and regions - drivers of development	September 17-19 2014	Zagreb, Croatia	media, industry, scientific community, Policy makers	puno	regional
21	workshop	Oliver Vugrek	Diagnostics 4.0 - Miniaturized Assays Technologies, Applications & Markets	September 11-12,2014	Berlin, Germany	scientific community		EU
22	exhibition	Tome Antičić	12th International Innovation Exhibition ARCA 2014	October 15-18, 2014	Zagreb, Croatia	media, industry, scientific community,		EU
23	workshop	Oliver Vugrek	4th Annual PRIME-XS meeting	October 8-11, 2014	Madrid, Spain	industry, scientific community		EU
24	conference	David Smith, Sanja Tomić	10th Triennial Congress of the World Association of Theoretical and Computational Chemists (WATOC 2014)	October 3-13, 2014	Santiago Chile		1000?	International
25	Symposium	Nikola Basarić	XXV IUPAC Symposium on Photochemistry	July 13-18, 2014.	Bordeaux, France		600	International
26	conference	Ivo Piantanida	XII International conference on molecular spectroscopy	Sept 8-12, 2013	Krakow, Poland		200	International
27	workshop	Marija	Circular Dichroisam and Linear Dichroism workshop	July 6-10,	Warwick, UK		50	EU
28	Symposium	Ivo	Beilstein Organic Chemistry Symposium 2014	Sept 23-27,	Prien, Germany		100	EU
29	Symposium	Trpimir Ivšić	Chirality 2014. - 26th International Symposium on Chiral Discrimination	July 26-32, 2014	Prague, Czech Republic		400	EU
30	workshop	Nina Jajčanin Jozić	EMBO workshop - Advances in protein-protein interaction analysis and modulation	Sept 9-13, 2014				EU
31	workshop	Zrinka Karačić	characterization EMBO PEPC9	Sept 7-11, 2014				
31	Conference	Ivo Piantanida	7th Central European Conference - Chemistry towards Biology	Sept 9-13, 2014	Katowice, Poland		200	EU
33	Conference	Ivica Kopriva, Marko Filipović	2014 IEEE International Conference on Acoustics, Speech, and Signal Processing	May 4-9, 2014	Firence, Italy		2.000	International
34	Conference	Igor Weber	14th International ELMI meeting	May 20-23, 2014	Oslo, Norway		350	International

35	Symposium	Branka Salopek Sondi	Auxins and Cytokinins in Plant Development, International Symposium	June 29-July 4, 2014	Prague, Czech Republic		300	International
36	workshop	Eva Šatović	EMBO workshop "Histone variants"	June 2-4,	Strasbourg,		50	EU
37	workshop	Martina Pavlek	3rd Workshop on the Application of Next Generation Sequencing to Repetitive DNA Analysis in Plants	May 24, June1, 2015	Budojevice, Czech Republic		40	EU
38	Conference	Tanja Vojvoda	20th International Chromosome Conference		Kent UK			International
39	workshop	Željka Pezer Sakač	Workshop on wild mice	May 22-25, 2014	Plon, Germany		150	EU
40	Conference	Vlatka Antolković	Dicty 2014, Annual International Dictyostelium conference	August 3-7, 2014	Postdam, Germany			International
41	Conference	Ana Smolko	7th Central European Conference - Chemistry	Sept 9-12, 2014	Katowice, Poland		200	EU
42	Conference	Dušica Vujaklija	ISBA17 Izmir	October 8-12, 2014	Aydin, Turkey			International
43	Conference	Magdalena Grce	29th International Papillomavirus Conference	August 20-30, 2014	Seattle, USA		300	International
44	workshop	Arijana Zorić, Neda Slade	6th International p63/p73 workshop, Chiba Japan	Septemper 15-18, 2013	Chiba, Japan		100	International
45	Conference	Maja Herak Bosnar	9th International Congress of NDP Kinase/Nm23/awd	July 31-August 4,	Boston, USA		60	international
46	Conference	Stjepko Čermak	Alzheimer's Association International conference	July 12-17, 2014	Copenhagen, Denmark			International
47	Conference	Oliver Vugrek	FEBS EMBO 2014	August 30-Sept 5, 2014	Paris, France		3.000	International
48	User meeting	Oliver Vugrek	Prime XS project annual meeting	October 8-9, 2014	Avila, Spain			
49	workshop	Ivanka Jerić	The InnoMol Proteomics Workshop	April 7-9, 2014	Zagreb, Croatia	scientific	82	EU, regional
50	workshop	Ivanka Jerić, Igor Weber	The InnoMol Bioimaging Workshop	October 20-22, 2014	Zagreb, Croatia		120	EU, regional

51	workshop	Ivanka Jerić, Ivo Piantanida	The InnoMol Molecular Interactions Workshop	June 1-3, 2015	Zagreb, Croatia		87	EU, regional
52	workshop	Ivanka Jerić, Oliver Vugrek	The InnoMol Genomics/Bioinformatics Workshop	November 16-18, 2015	Zagreb, Croatia		93	EU, regional
53	workshop	Ivanka Jerić, Marijeta Kralj	New Platforms for Molecular Solutions in Research and Development	May 11-12, 2016	Zagreb, Croatia		125	EU, regional
54	Conference	Igor Weber	3rd Croatian Microscopy Congress	April 26 - 29, 2015	Zadar, Croatia		94	
55	Conference	Oliver Vugrek	Game of Epigenomics Conference	April 24-28, 2016	Dubrovnik, Croatia		98	
56	Conference, poster	Marin Roje	BIOPROSP_15, 7th International conference on marine bioprospecting	February 18-20, 2015	Tromoso, Norway	Sci.	200	international
57	Conference, poster	Rozelinda Coz Rakovac	BIOPROSP_15, 7th International conference on marine bioprospecting	February 18-20, 2015	Tromoso, Norway	Sci	200	international
58	Conference, poster	Josipa Suć	40th Summer School school on organic synthesis ''A. CORBELLA''	June 14-18 2015	Gargnano, Italy	Sci.	140	international
59	Conference, poster	Ivanka Jerić	IXth Joint Meeting in Medicinal Chemistry	June 7-10, 2015	Athens, Greece	Sci.	200	international
60	Conference, poster	Matija Gredičak	19th European Symposium on Organic Chemistry	July 12-16, 2015	Lisabon, Portugal	Sci	500	International
61	Conference, poster	Nataša Šijaković Vujičić	29th Conference of the European Colloid and Interface Society (ECIS 2015)	September 6-11, 2015	Bordeaux, France	Sci.	600	international
62	Conference, poster	Marina Grabar Branilović	The 10th European Biophysics Congress (EBSA 2015)	July 18-22, 2015	Dresden, Germany	Sci	1500	international
63	Conference, poster	Andreja Ambriović Ristov	Anticancer Drug Action and Drug Resistance: from Cancer Biology to the Clinic (EACR AACR SCI 2015	June 20-23, 2015	Florence , Italy	Sci	750	international
64	Conference, poster	Vesna Musan	ESHG2015 (European Human Genetics Conference)	June 5-10, 2015	Glasgow, UK	Sci	2500	International

65	Conference, poster	Anđela Horvat	2nd International p53 Isoforms Conference	September 20-23, 2015	Aix-en Provence,	Sci	250	International
66	Conference, poster	Pau Marc Munoz Torres	29th Annual Symposium of the Protein Society	July 22-25, 2015	Barcelona, Spain	Sci	500	international
67	Conference, poster	Sonja Levanat	EACR - Basic Apigenetic Mechanisms in Cancer	November 8-11, 2015	Berlin, Germany	Sci	300	International
68	workshop	Neda Slade	8th International mdm2 workshop	November 1-4, 2015	New Orleans , USA	Sci	250	International
69	presentation	Oliver Vugrek Ivanka Jerić Igor Weber	RBI delegation visit at Technical University of Munich	February 23-35, 2016	Munich, Germany	sci	50	Germany, bilateral
70	presentation	Tome Antičić	MIPRO 2015; 38th international convention on information and communication technology,	May 25-29, 2015	Opatija, Croatia	sci, industry, policy , media	600	international
71	presentation	Ivanka Jerić	Shanghai Institute of Organic Chemistry	May 23, 2016	Shanghai, China	sci	50	international
72	presentation	Oliver Vugrek	COFUND as a moving impulse of research excellence: challenges and opportunities, organized by the Ministry of Science, Education and Sports	June 16-17, 2016	Zagreb, Croatia	policy makers, sci, media		regional
73	presentation	Oliver Vugrek	Croatian Academy of Science and Arts and The	May 17, 2016	Zagreb, Croatia	sci, media		local
74	presentation	Oliver Vugrek	Days of clinical genetics: what's new?	June 10-11, 2016	Zagreb			local
75	presentation	Oliver Vugrek	*"Next Generation Sequencing platform at Ruđer Boskovic Institute- actual and future projects"*	November 26, 2015	Maribor, Slovenia			regional
76	presentation	Oliver Vugrek	Opening of the Next Generation Sequencing Facility	March 26, 2015	RBI, Croatia	sci. media	100	regional
77	presentation	Marin Roje	5th Meeting of Medicinal chemistry section of Croatian Chemical Society	May 3, 2016	Zagreb	sci	60	local
78	presentation	Ana-Matea Mikecin	Institute for Biochemistry II, Goethe University	May 2015.	Frankfurt, Germany	sci	50	Germany
79	presentation	Ana-Matea Mikecin	German Cancer Research Center (DKFZ) and Heidelberg	May 2015	Heidelberg, Germany	sci	50	Germany

80	presentation	Neda Slade	CEINGE-Biotecnologie Avanzate s.c. a r.l	March 8, 2016	Napoli, Italy	sci	50	Italy
81	presentation	Marin Roje	Faculty of Chemistry and Technology, Split, Croatia	January 27, 2016	Split, Croatia			regional
82	presentation	Katja Ester	COST Action BM1406: Ion Channels and Immune Response	March 9-11th, 2016	Lisbon			international
83	exhibition	Tihomir Balog, Neda Slade, Maja Herak Bosnar, Duška Vujaklija and Katja Ester	RBI Open Day 2015	June 13, 2015	RBI, Croatia	civil, media	2.000	regional
84	exhibition	Igor Weber, Katja Ester and Ana-Matea Mikecin	RBI Open Day 2016	May 14, 2016	RBI, Croatia	civil, media	3.500	regional
85	exhibition	Oliver Vugrek	Zagreb HBT, Health and Beauty Travel	29.09.-02-10.2016	Zagreb	Civil, media	1000	regional
	TV and media appearances							local
	TV		Dobro jutro, Hrvatska	4.4.2013.	HRT			
	TV	Ivanka Jerić	Trenutak spoznaje	11.4.2013.	HTV			
	TV	Tome Antičić	Znanstvene vijesti	13.4.2013.	HTV			
	TV	Tome Antičić	Dnevnik NOVE TV	7.5.2013.	Nova TV			
	TV	Tome Antičić	Znanstvene vijesti	18.5.2013.	HTV			

	TV	Tome Antičić	Dobro jutro, Hrvatska	20.5.2013	HTV			
	TV	Tome Antičić	Vijesti	23.5.2013.	Dubrovačka TV			
	TV	Tome Antičić	Znanstvena petica	24.5.2013.	HTV			
	TV	InnoMol	Dnevnik NOVE TV	5.6.2013.	HTV			
	TV		Županijska panorama Rijeka	7.6.2013.	HRT4			
	TV		Dnevnik	21.5.2013.	Kanal RI			
	TV	Oliver Vugrek	Dobro jutro, Hrvatska	17.6. 2013	HTV			
	TV	InnoMol	Hrvatska uživo	17.6.2013.	HTV			
	TV	InnoMol	Znanstvene vijesti	15.6.2013.	HTV			
	TV		Vijesti	19.6.2013.	24 sata TV			
	TV		Vijesti	19.6.2013.	Mreža TV			
	TV		Putem europskih fondova	21.6.2013.	HTV1			
			Dnevnik u 12	26.6.2013.	HTV1			
	TV	Tome Antičić	Regionalni dnevnik	26.6.2013.	HTV			
	TV		Posebna emisija	2.7.2013.	Z1			
	TV	Oliver Vugrek	Dnevnik NOVE TV	3.7.2013.	Nova TV			
	TV		Dobro jutro, Hrvatska	8.7.2013	HRT1			
	TV	Oliver Vugrek	Hrvatska uživo	17.7.2013.	HTV			
	TV	Tome Antičić	Dnevnik u 12	26.6.2013.	HTV			
	TV	Tome Antičić	Tema dana. Znanost	17.7.2013.	HTV			
	TV	Tome Antičić	Dnevnik NOVE TV	25.12.2013.	Nova TV			
	TV	Igor Weber	RTL vijesti	27.2.2014.	RTL			

	TV	Igor Weber, Oliver Vugrek	RTL vijesti	28.2.2014.	RTL			
	TV	Igor Weber	Društvena mreža	6.3.2014.	HTV			
	TV	Igor Weber,	Dnevnik NOVE TV	6.3.2014.	Nova TV			
	TV	Igor Weber	Znanstveni krugovi	14.3.2014.	HTV			
	TV	Tome Antičić	Studio 4	6.5.2014.	HTV			
	TV	Tome Antičić	Dnevnik NOVE TV	6.5.2014	Nova TV			
	TV	Tome Antičić	Vijesti Z1	6.5.2014.	Z1			
	TV	Oliver Vugrek	Novi dan	2.12.2014.	N1			
		Oliver Vugrek	Vijesti u 5	16.12.2014.	HRT1			
		Oliver Vugrek	Vijesti Nove TV	16.12.2014.	Nova TV			
		Oliver Vugrek	Dnevnik	16.12.2014.	HRT1			
	Radio, interview	Robert Belužić	Posebna emisija	19.7.2013.	HR1			
	Radio, interview	Oliver Vugrek	Dnevne novosti	21.7.2013.	HR1			
	Radio, interview	Oliver Vugrek	zagrebački dnevnik	21.7.2013.	Radio Sljeme			
	Radio, interview	Tome Antičić	Znanost i business	21.3.2013.	Radio 101			
	Radio, interview	Tome Antičić	Znanost i business	28.3.2013.	Radio 101			
	Radio, interview	Tome Antičić	Drag mi je Platon	29.5.2013.	HR1			

	Radio, interview	Oliver Vugrek	Aktualno u 17	3.1.2014	HR			
	Radio, interview	Oliver Vugrek	Aktualno u 17	10.2. 2014.	HR			
	Radio, interview	Oliver Vugrek	Drag mi je Platon	12.2.2014.				
	Radio, interview	Igor Weber	Drag mi je Platon	19.3.2014.				
	Radio		Nije nevažno	26.9.2014.	Radio Sljeme			
	TV		Sve u šest	12.2.2015.	HRT			
	TV	Oliver Vugrek	Dnevnik N1	18.2.2015.	N1			
	TV	Oliver Vugrek	Novi dan	19.2.2015.	N1			
	TV	Oliver Vugrek	Društvena mreža	26.3.2015	HRT			
	TV	Oliver Vugrek	Županijska panorama	26.3.2015.	HRT			
	TV	Oliver Vugrek	Dnevnik	26.3.2015	HRT			
	TV	Oliver Vugrek	Dnevnik Nove TV	26.3.2015.	Nova TV			
	TV	Oliver Vugrek	Vijesti	26.3.2015.	Al Jazeera			
	Radio		Drag mi je Platon	26.03.2015	HR			
	Radio		Jutarnja kronika	26.03.2015	HR			
	Radio		Dnevne novosti	26.03.2015	HR			
	Radio		Vijesti	26.03.2015	Yammat			
	Radio		Zvjezdane staze	26.03.2015	Yammat			
	Radio		Zagrebački dnevnik	26.03.2015	Radio Sljeme			
	Radio		Dnevnik	26.03.2015	HR Radio Pula			
	Radio		Vijesti dana	26.03.2015	Yammat			
	Radio		Izaberi zdravlje	31.1.2016.	HR			
	Weblinks of press releases	Oliver Vugrek					www	local

			http://dnevnik.hr/vijesti/hrvatska/institut-rudzer-boskovic-dobio-5-milijuna-eura-iz-europskih-fondova---289439.html					
			http://www.vecernji.hr/vijesti/institut-ruder-boskovic-dobio-5-milijuna-eura-eu-fondova-clanak-564778					
			http://www.rtl.hr/vijesti/novosti/782268/hrvatska-pamet-na-cijeni-nasi-znanstvenici-dobili-5-milijuna-eura/					
			http://www.poslovni.hr/hrvatska/institutu-ruer-boskovic-pet-milijuna-eura-iz-europskih-fondova-243310					
			http://liderpress.hr/poslovna-znanja/hrvatskim-znanstvenicima-pet-milijuna-eura-iz-eu-fondova/					
			http://www.banka.hr/hrvatska/institutu-rudjer-boskovic-4-8-milijuna-eura-iz-fondova-eu					
			http://www.tportal.hr/scitech/znanost/266193/Ruder-dobiva-5-mil-eura-za-nove-lijekove.html					
			http://www.politikaplus.com/novost/80154/Institutu-Ruder-Boskovic-5-milijuna-eura-iz-EU-fondova-za-razvoj- lijekova					
			http://www.vecernji.hr/index.php?cmd=show_clanak&clanak_id=564778&action=print_popup					
			http://www.business.hr/eu-fondovi/rudjeru-5-milijuna-eura-iz-eu-fondova-za-razvoj-novih-lijekova					
			http://www.vidi.hr/Non-Tech/Hrvatska/Ruderu-5-milijuna-eura-EU-za-razvoj-lijekova					
			http://cudaprirode.com/portal/vijesti-iz-hrvatske/5023-milijuni-eura-za-hrvatsku-znanost-ak-5-milijuna-eura-iz- eu-fondova-ide-na-institut-ruer-bokovi					
			http://www.privredni.hr/vijesti/prilike/385-institut-ruder-boskovic-dobio-pet-milijuna-eura-iz-eu-fondova					
			http://dalje.com/hr-zivot/rudjeru-5-milijuna-eura-iz-					

			http://www.hrt.hr/index.php?id=vijesti-clanak&tx_ttnews%5Btt_news%5D=212541&tx_ttnews%5BbackPid%5D=866&cHash=d4a108700d					
			http://www.najnovijevijesti.net/institut-rudjer-boskovic-dobio-5-milijuna-eura-iz-eu-fondova_711040					
			http://limun.hr/main.aspx?ID=934201					
			http://limun.hr/main.aspx?ID=934231					
			http://www.vijesti.hr/vijest/www.vecernji.hr/vijesti/institut-ruder-boskovic-dobio-5-milijuna-eura-eu-fondova- clanak-564778					
			http://etleboro.org/hr/!/!/7742948					
			http://vazdan.com/vijest.php?id=1106843					
			http://www.nedstor.com/search/					
			http://portal.connect.znanost.org/2013/06/5-milijuna-eur-iz-eu-fondova-ruderu/					
			http://www.ebrod.net/hrvatska-i-svijet/institut_ruer_boskovi_dobio milijuna_eura_iz_eu_fondova35397.html					
			http://cro.time.mk/cluster/73d5123d9e/rudjeru-5-milijuna-eura-iz-eu-fondova-za-razvoj-novih-lijekova.html					
			http://www.in-portal.hr/clanak/institut-ruder-boskovic-istrazivanje-lijekova-za-kljucne-bolesti					
			http://www.nedstor.com/vijesti/institut-ruder-boskovic-dobio-5-milijuna-eura-iz-eu-fondova					
			http://www.croportal.net/gospodarstvo/Institutu_Ruder_Boskovic_4_8_milijuna_eura_iz_fondova_EU-2641777					
			http://www.1klik.hr/tehnologija/581					
			http://www.europski-fondovi.eu/vijesti/institut-ruer-bo-kovi-za-projekt-innomol-dobio-48-milijuna-iz-fp7-programa					
			http://www.plivamed.net/novosti/clanak/7953/Rudj					

			http://www.mojedionice.com/mobile/v.aspx?id=81430					
			http://public.mzos.hr/Default.aspx?art=12498&sec=1933					
			http://globus.jutarnji.hr/zivot/prvi-cemo-izraditi-senzor-za-rak					
			http://public.mzos.hr/Default.aspx?art=12498					
			http://euhorizont.bankamagazine.hr/LinkClick.aspx?fileticket=C5HF1LD229Y%3D&tabid=500&language=hr-HR#e					
			http://www.korzo.net/Znanost-ukratko/Institutu-R.-Boskovic-odobreno-5-milijuna-eura-za-razvoj-lijekova.html					
			http://www.deso.mk/News/536/CRO-Institut-Ruer-Bokovi-dobio-5-milijuna-eura-iz-EU-fondova-					
			http://chat-hrvatska.bloger.index.hr/					
			http://www.youtube.com/watch?v=gbrPe9aLHp8					
			http://daily.tportal.hr/266199/Rudjer-Institute-wins-EUR-5-million-EU-project-for-molecular- medicine-research.html					
			http://www.croatiaherald.com/					
			http://www.croatiantimes.com/news/General_News/2013-0606/33786/Rudjer_Boskovic_Institute_wins_5_million_Euro_from_EU_funds					
			http://www.croatiantimes.com/news/General_News/2013-0606/33786/Rudjer_Boskovic_Institute_wins_5_million_Euro_from_EU_funds					
			http://www.irb.hr/Novosti/IRB-na-MIPRO-2013-predstavlja-infrastrukturne-projekte-vrijedne-preko-100-milijuna-eura					
			http://www.innomol.eu/Media-Centre/Press-					

Section B

Section B specifies the exploitable foreground and provides the plans for exploitation. **Data is confidential.**

Part B1: LIST OF APPLICATIONS FOR PATENTS

LIST OF APPLICATIONS FOR PATENTS, TRADEMARKS, REGISTERED DESIGNS, ETC.					
Type of IP Rights:	Confidential Click on YES/NO	Foreseen embargo date dd/mm/yyyy	Application reference(s) (e.g. EP123456)	Subject or title of application	Applicant (s) (as on the application)
Patent	YES	01/06/2016	EP16169771.9	QUINONE-METHIDE PRECURSORS WITH BODIPY CHROMOPHORE, METHOD OF PREPARATION, BIOLOGICAL ACTIVITY AND APPLICATION IN FLUORESCENT LABELING	N. Basarić, M. Kralj, A.-M. Mikecin
Patent	YES	12/05/2016	PCT/HR2016/000016	LOW MOLECULAR WEIGHT ORGANIC GELATORS OF VEGETABLE OIL	Rudjer Boskovic Institute (Nataša Šijaković Vujičić)

Part B2

Exploitable foreground and plans for exploitation

Public Health Genomics

The most promising foreground and exploitable parts of InnoMol are related to Public Health Genomics. Namely, the InnoMol genomics platform at RBI is now the most advanced platform in the region that allows R&D for genetic testing, for example development for custom–tailored tests for any genetically assessable disease; envisaged is affordable genetic testing for a wide range of diseases, including cancer, cardiovascular diseases and inherited diseases. Both microarray and NGS technology are part of this platform, and represent complementary approaches in personalized medicine or life science research.

Before InnoMol, diagnostics has been following classical approaches at RBI, as for example breast and ovarian cancer diagnostics (BRCA1, 2). Outdated approaches are expensive, and costs are not covered by the national health system, thereby impacting effectiveness of genetics-based health care applications. Thus it is compulsory to reduce costs and improve delivery research on clinical utility in order to generate added value in cancer care and prevention. Advanced genetics and related fields will also affect surveillance, dissemination and diffusion research as well as evaluation of cancer progression and survivorship

There are striking variations in the risk and type of cancer by geographic area. In south Eastern Europe, most common cancer type in men is lung cancer, followed by colorectal and prostate cancer. The most frequent cancer in women was breast cancer followed by colorectal cancer. Most concerning for the Croatian population is the fact that it has one of the highest incidences of cancer in the younger population (age 0-19) among SEE countries.

Also, among European countries, striking differences in the quality of cancer care are observed, especially when comparing “old” and “new” EU members, or, between developed and developing countries. Cancer survival is significantly lower in Eastern European countries, including the new Member States, than in the EU 15, indicating that the research and innovation divide also throws shadows on the public health sector.

Thus, there is an urgent need to develop clinical and population-level research, policy and practice processes to translate basic science discoveries into actions that reduce the population burden of cancer in low performing countries.

There is no doubt that NGS is an absolute necessity for the type of work carried out in the Divisions of InnoMol, e.g. Biology and Medicine. There are also external users, both private

and academic from far away areas in Croatia. The number of applications of NGS is growing every day and the capacity of such instruments is very high. Thus, knowledge of use of genomics platform for commercial activities is a key parameter for Exploitation. Considering that the RBI NGS is the only one in Croatia, the purchase is adequate and quality control of the data will give Croatian scientists the opportunity to learn the weak points of the technology which is absolutely necessary for scientific and diagnostic judgments, and educational purposes.

Advanced genomics has huge potential in several respects. For example, job creation for certain profiles of scientists such as bioinformaticians, and data analysts, but also experts in product development, molecular biologists and biochemists.

Based on applications, end users and geography, the NGS market is segmented as follows:

Applications	• Diagnostics • Cancer • Monogenic Disorders • Diabetes • Drug Discovery and Development • Personalized Medicine • Agriculture and Animal Research • Others
End users	• Research Center, Academic and Government Institutions • Hospitals and Clinics • Pharmaceutical and Biotechnology Companies • Others
Geography	• North America (the largest market) • Europe • Asia (growth at the highest rate over the next five years) • Rest of the World (RoW)

Substantial investments have been made in exploitable equipment for the study of molecular interactions. Thus, a differential scanning calorimeter, an isothermal titration calorimeter, and a micro-viscosimeter are instruments with extensive use by RBI, and so far, at least 7 external users (UniZagreb, Faculty of Science and Faculty of Biotechnology, also Pharmacy). There is a high sense of dynamics present and the development of new bio-organic compounds combined with molecular interaction studies and parallel imaging studies offers high potential for exploitation towards therapeutic applications. Influencing molecular interactions in a weak way is a desirable goal for several human diseases, e.g. auto-immune and inflammatory defects.

This confocal microscope may play an important role to generate animations of important life processes that may yield in educational material that can play an important role for high school and university studies in cell biology and molecular biology. This is an opportunity that eventually could lead to a spin-off where the multi-disciplinary nature of the RBI would find a very beautiful application in the regular society. An IT-incubator located start-up could develop and use existing animation software for educational purposes. Such products can find a broad interest and are extremely easy to distribute via internet. Software support is also easy to organize from a central point with a high degree of internationalization, as is the case at RBI.

The InnoMol SME industry (partner PRO) has already become interested in partnering with RBI to develop microarray prototypes for methylome research. Although appearing very promising at this point, further research and proof-of-concept stages are required to bring this to fruition.

AI technologies for the analyses of data fused or integrated from different experimental sources, such as approaches used in InSilico (http://insilico.ulb.ac.be/) database, will essentially enable positioning of InnoMol experimental pipeline results in a broader perspective and significantly boost both future research and innovation potential of the overall RBI molecular science community.With additional research, it is hoped to develop the RBI technologies into commercial software.

Custom array production has potential for 'Spin-off' due to growing demand for DNA and protein arrays in a significantly growing market for array technology. Partnering with SME Progenika will help RBI for evaluating all possibilities for commercialisation of array technology in regard to methylation research, and technology transfer towards industry. This direction also requires further investigation before viable commercial outcomes can be realistically achieved.

Management of intellectual property

IPR rules will concentrate on the principles and provisions considered necessary for an efficient cooperation and the appropriate use and dissemination of the results obtained. Access rights to Background and Foreground IPR for carrying out the participants' own work under the project will be royalty free unless otherwise agreed before signing the contract.

Access rights to background and foreground IPR for exploitation purposes and further research will be defined by fair and reasonable conditions.

Table B2

Type of Exploitable Foreground	Description of exploitable foreground	Confidential	Foreseen embargo date	Exploitable product(s) or measure(s)	Sector(s) of application	Timetable, commercial or any other use	Patents or other IPR exploitation (licences)	Owner & Other Beneficiary (s) involved
Commercial exploitation of R&D results	Next-generation sequencing - custom design of gene panels Exploit NGS knowledge to offer services to the professional community	YES	Unknown	Custom panels	Health, Life Sciences, R&D	To be determined	To be determined	To be determined
General advancement of knowledge	NGS services and knowledge how to use NGS	YES	Unknown	Next-generation sequencing services	Health, Life Sciences, R&D	To be determined	n/A	To be determined
Commercial exploitation of R&D results	Exploit NGS knowledge to offer services to the professional community	YES	Unknown	Software solutions, services for NGS data anlysis	Health, Life Sciences, R&D	To be determined	To be determined	To be determined
General advancement of knowledge	AI technologies - Smart analysis of fused or disconnected big data	YES	Unknown	Software solutions	Biotech	To be determined	To be determined	To be determined
Commercial exploitation of R&D results	DNA and protein arrays for precision medicine	YES	Unknown	Custom array production	Biotech, Health, R&D	To be determined	To be determined	Progenika (InnoMol SME partner)
General advancement of knowledge	Use the microarray knowledge to offer services to the professional community	YES	Unknown	Microarray scanning and analysis for customers; services	Biotech, Health, R&D	To be determined	To be determined	PRO (InnoMol SME partner)

1.3 Report on societal implications

A General Information *(completed automatically when **Grant Agreement number** is entered.*	
Grant Agreement Number:	316289
Title of Project:	Enhancement of the Innovation Potential in SEE through new Molecular Solutions in Research and Development
Name and Title of Coordinator:	Dr. Oliver Vugrek, Division of Molecular Medicine, RBI

B Ethics	
1. Did your project undergo an Ethics Review (and/or Screening)? • If Yes: have you described the progress of compliance with the relevant Ethics Review/Screening Requirements in the frame of the periodic/final project reports? Special Reminder: the progress of compliance with the Ethics Review/Screening Requirements should be described in the Period/Final Project Reports under the Section 3.2.2 *'Work Progress and Achievements'*	YES ***Yes***
2. Please indicate whether your project involved any of the following issues (tick box) :	
RESEARCH ON HUMANS	
☐ Did the project involve children?	NO
☐ Did the project involve patients?	NO
☐ Did the project involve persons not able to give consent?	NO
☐ Did the project involve adult healthy volunteers?	NO
☐ Did the project involve Human genetic material?	YES
☐ Did the project involve Human biological samples?	YES
☐ Did the project involve Human data collection?	YES
RESEARCH ON HUMAN EMBRYO/FOETUS	
☐ Did the project involve Human Embryos?	NO
☐ Did the project involve Human Foetal Tissue / Cells?	NO
☐ Did the project involve Human Embryonic Stem Cells (hESCs)?	NO
☐ Did the project on human Embryonic Stem Cells involve cells in culture?	NO
☐ Did the project on human Embryonic Stem Cells involve the derivation of cells from Embryos?	NO
PRIVACY	
☐ Did the project involve processing of genetic information or personal data (eg. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?	NO
☐ Did the project involve tracking the location or observation of people?	NO
RESEARCH ON ANIMALS	
☐ Did the project involve research on animals?	NO
☐ Were those animals transgenic small laboratory animals?	NO
☐ Were those animals transgenic farm animals?	NO

Were those animals cloned farm animals?	NO
Were those animals non-human primates?	NO
RESEARCH INVOLVING DEVELOPING COUNTRIES	
Did the project involve the use of local resources (genetic, animal, plant etc)?	NO
Was the project of benefit to local community (capacity building, access to healthcare, education etc)?	YES
DUAL USE	
Research having direct military use	No
Research having the potential for terrorist abuse	No

C Workforce Statistics

3. Workforce statistics for the project: Please indicate in the table below the number of people who worked on the project (on a headcount basis).

Type of Position	Number of Women	Number of Men
Scientific Coordinator	0	1
Work package leaders	3	4
Experienced researchers (i.e. PhD holders)	28	20
PhD Students	0	0
Other	0	1

4. How many additional researchers (in companies and universities) were recruited specifically for this project?	15
Of which, indicate the number of men:	5

D Gender Aspects

5. Did you carry out specific Gender Equality Actions under the project?

☐ Yes
☐ No

6. Which of the following actions did you carry out and how effective were they?

	Not at all effective				Very effective
• Design and implement an equal opportunity policy	☐	☐	☐	☐	☐
• Set targets to achieve a gender balance in the workforce	☐	☐	☐	☐	☐
• Organise conferences and workshops on gender	☐	☐	☐	☐	☐
• Actions to improve work-life balance	☐	☐	☐	☐	☐

☐ Other:

7. Was there a gender dimension associated with the research content – i.e. wherever people were the focus of the research as, for example, consumers, users, patients or in trials, was the issue of gender considered and addressed?

☐ Yes- please specify

☐ No

E Synergies with Science Education

8. Did your project involve working with students and/or school pupils (e.g. open days, participation in science festivals and events, prizes/competitions or joint projects)?

☐ Yes- please specify: RBI Open Days
☐ No

9. Did the project generate any science education material (e.g. kits, websites, explanatory booklets, DVDs)?

☐ Yes- please specify

☐ No

F Interdisciplinarity

10. Which disciplines (see list below) are involved in your project?

☐ Main discipline: 1.5 Natural Sciences – Biological Sciences
☐ Associated discipline: 1.3 Natural Sciences – Chemical Sciences
☐ Associated discipline: 3.1 Medical Sciences – Basic Medicine

G Engaging with Civil society and policy makers

11a Did your project engage with societal actors beyond the research community? *(if 'No', go to Question 14)*

☐ Yes
☐ No

11b If yes, did you engage with citizens (citizens' panels / juries) or organised civil society (NGOs, patients' groups etc.)?

☐ No
☐ Yes- in determining what research should be performed
☐ Yes - in implementing the research
☐ Yes, in communicating /disseminating / using the results of the project

11c In doing so, did your project involve actors whose role is mainly to organise the dialogue with citizens and organised civil society (e.g. professional mediator; communication company, science museums)?

☐ Yes
☐ No

12. Did you engage with government / public bodies or policy makers (including international organisations)

- ☐ No
- ☐ Yes- in framing the research agenda
- ☐ Yes - in implementing the research agenda
- ☐ Yes, in communicating /disseminating / using the results of the project

13a Will the project generate outputs (expertise or scientific advice) which could be used by policy makers?

- ☐ Yes – as a **primary** objective (please indicate areas below- multiple answers possible)
- ☐ Yes – as a **secondary** objective (please indicate areas below - multiple answer possible)
- ☐ No

13b If Yes, in which fields?

Agriculture		Energy		Human rights	
Audiovisual and Media		Enlargement		Information Society	
Budget		Enterprise		Institutional affairs	
Competition		Environment		Internal Market	
Consumers		External Relations		Justice, freedom and security	
Culture		External Trade		Public Health	
Customs		Fisheries and Maritime Affairs		Regional Policy	
Development Economic and Monetary Affairs Education, Training, Youth Employment and Social Affairs		Food Safety		Research and Innovation	
		Foreign and Security Policy		Space	
		Fraud		Taxation	
		Humanitarian aid		Transport	

13c If Yes, at which level?

- ☐ Local / regional levels
- ☐ National level
- ☐ European level
- ☐ International level

H Use and dissemination

14. How many Articles were published/accepted for publication in peer-reviewed journals?	43
To how many of these is open access provided?	30
How many of these are published in open access journals?	10
How many of these are published in open repositories?	30
To how many of these is open access not provided?	13
Please check all applicable reasons for not providing open access:	
☐ publisher's licensing agreement would not permit publishing in a repository ☐ no suitable repository available ☐ no suitable open access journal available ☐ no funds available to publish in an open access journal ☐ lack of time and resources ☐ lack of information on open access ☐ other[23]: ……	

15. How many new patent applications ('priority filings') have been made? *("Technologically unique": multiple applications for the same invention in different jurisdictions should be counted as just one application of grant).*		3
16. Indicate how many of the following Intellectual Property Rights were applied for (give number in each box).	Trademark	0
	Registered design	0
	Other	0
17. How many spin-off companies were created / are planned as a direct result of the project?		1
Indicate the approximate number of additional jobs in these companies:		2

18. Please indicate whether your project has a potential impact on employment, in comparison with the situation before your project:

- ☐ Increase in employment, or
- ☐ Safeguard employment, or
- ☐ Decrease in employment,
- ☐ Difficult to estimate / not possible to quantify

- ☐ In small & medium-sized enterprises
- ☐ In large companies
- ☐ None of the above / not relevant to the project

19. For your project partnership please estimate the employment effect resulting directly from your participation in Full Time Equivalent (*FTE = one person working fulltime for a year*) jobs:	*Indicate figure:* 10
Difficult to estimate / not possible to quantify	☐

I Media and Communication to the general public

20. As part of the project, were any of the beneficiaries professionals in communication or media relations?

☐ Yes ☐ No

21. As part of the project, have any beneficiaries received professional media / communication training / advice to improve communication with the general public?

☐ Yes ☐ No

22 Which of the following have been used to communicate information about your project to the general public, or have resulted from your project?

☐	Press Release	☐	Coverage in specialist press
☐	Media briefing	☐	Coverage in general (non-specialist) press
☐	TV coverage / report	☐	Coverage in national press
☐	Radio coverage / report	☐	Coverage in international press
☐	Brochures /posters / flyers	☐	Website for the general public / internet
☐	DVD /Film /Multimedia	☐	Event targeting general public (festival, conference, exhibition, science café)

23 In which languages are the information products for the general public produced?

☐	Language of the coordinator	☐	English
☐	Other language(s)		