Predstavljanje uspješnih REGPOT projekata

CAPRI2010

Prof. dr. Stipan Jonjić
Medicinski fakultet Sveučilišta u Rijeci

FP7 REGPOT Info dan

Rijeka, 1. srpnja 2010.

Zahvala

Tihana Lenac Roviš

Kerol Bartolović

Christian Kleinhammer

Ani Gerbin

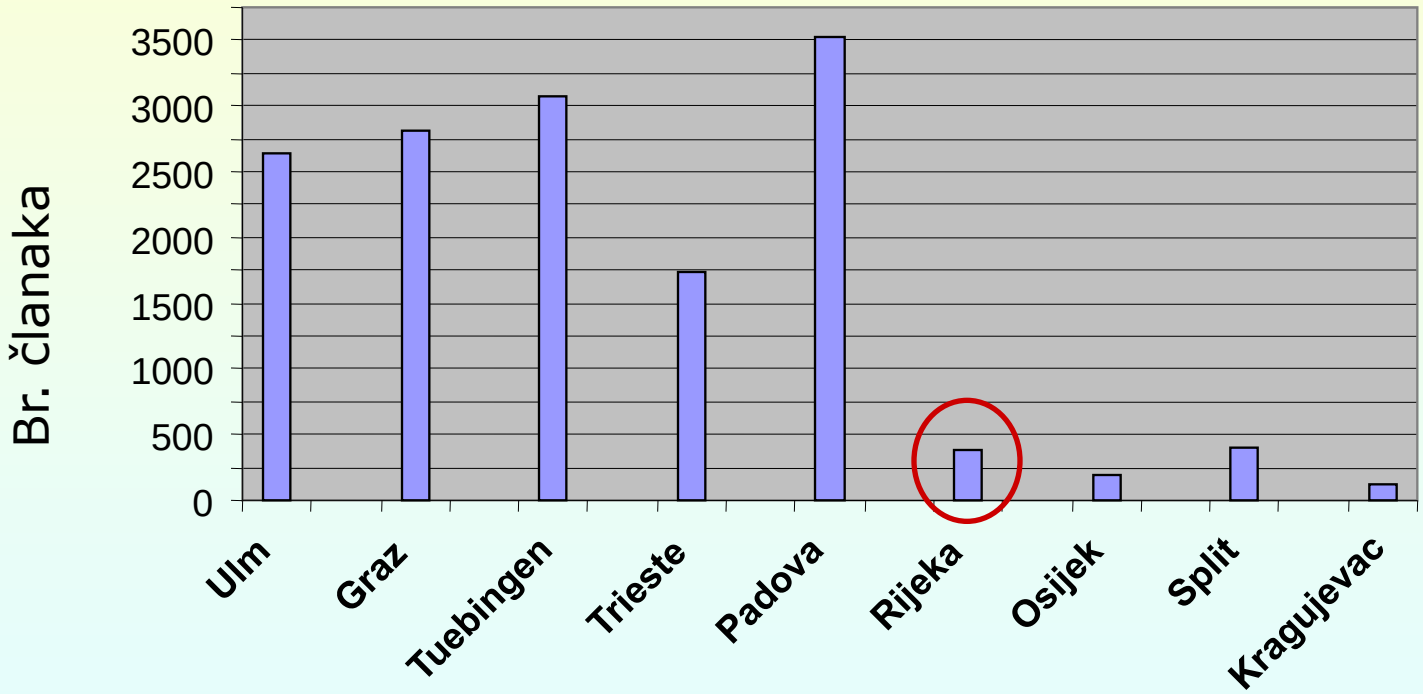
Borimo li se zaista dovoljno za međunarodne projekte i koliko smo stvarno uspješni?

Kako realno stojimo u Hrvatskoj u pogledu razvijenosti znanosti?

- slaba apsorpcijska sposobnost naše znanosti
- usitnjenost
- nedovoljna umreženost
- nefokusiranost
- neselektivnost
- senzacionalizam
- nespremnost institucija (sveučilišta i fakulteta) da na sebe preuzmu odgovornost za reforme

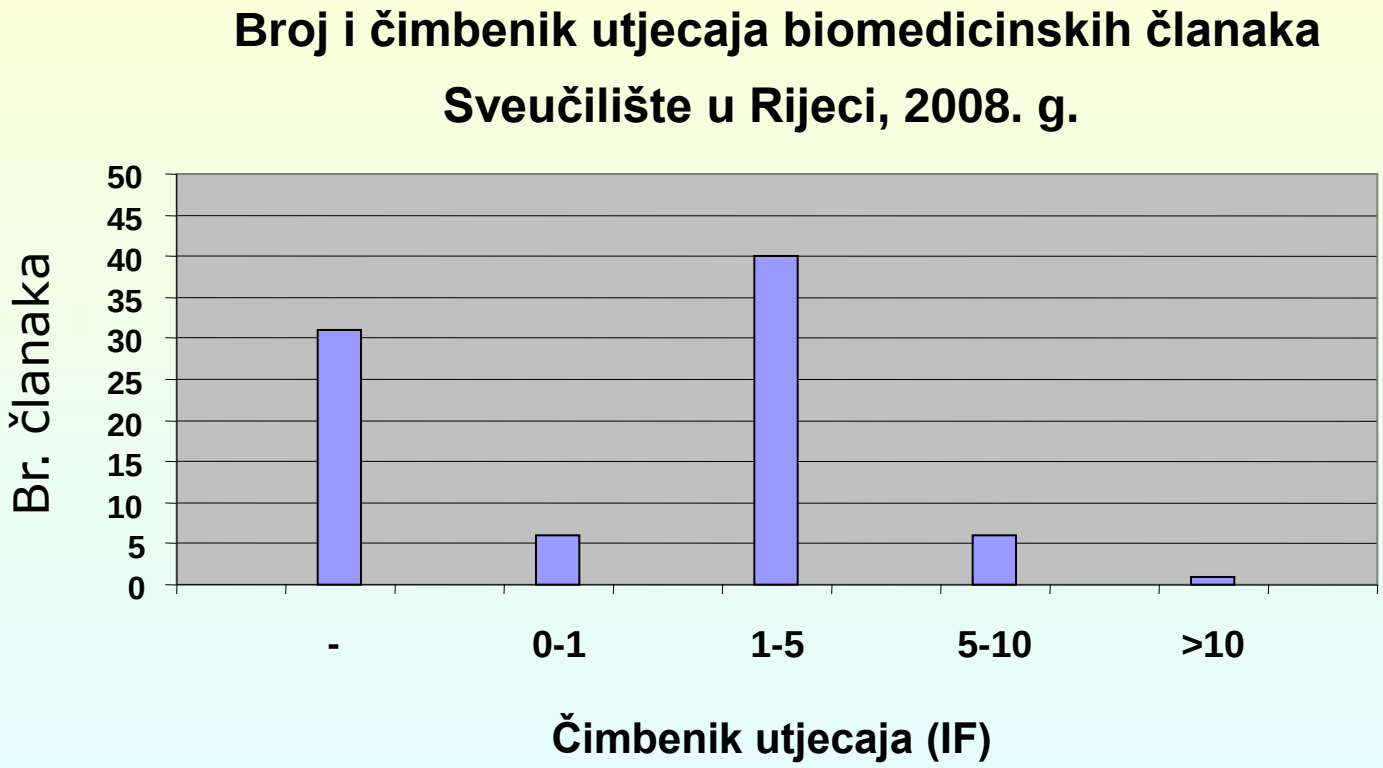
Trenutno stanje znanosti – usporedna analiza biomedicinskih publikacija

2003 - 2008. god.



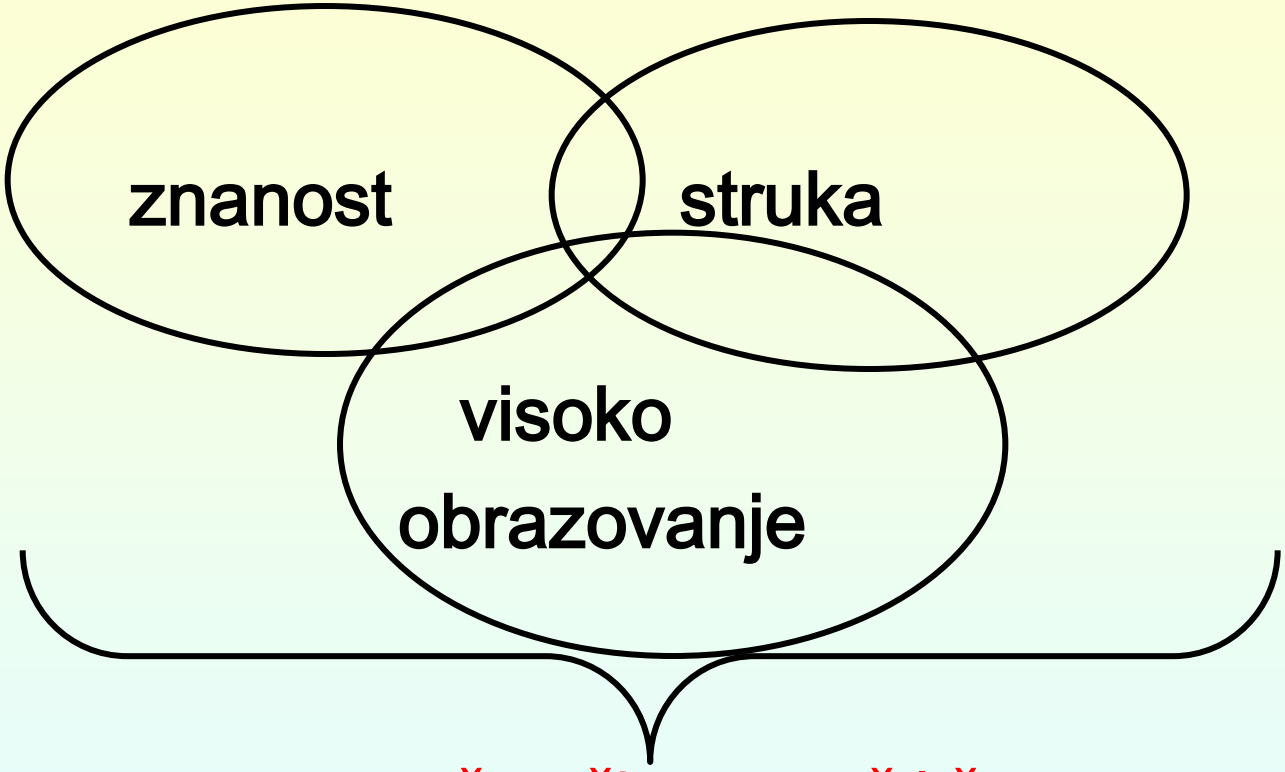
Izvor: PubMed

Trenutno stanje znanosti – Sveučilište u Rijeci



Izvor: ISI Web of Knowledge

Što čini kvalitetno visoko učilište?



1. Istraživačko sveučilište
2. Zajamčen razvoj kadrova
3. Zajamčen uspjeh

Razvoj vrhunskih kadrova

Ne otkrivati toplu vodu, već slijediti primjere uspješnih!

- Pozitivni odabir na svim razinama
- Ciljana edukacija na uglednim sveučilištima
- Bolje povezivanje primijenjenih i temeljnih znanosti
- Umrežavanje naših znanstvenika u međunarodnu znanstvenu i akademsku zajednicu kroz projekte (FP7, NIH)
- Podizanje kriterija izbora i unaprjeđivanja u znanstvena i nastavna zvanja i izbor rukovodećih kadrova

Možemo zaključiti...

- Nerazvijenost visokoškolskog i znanstvenog sustava najveća je prepreka uspjehu Hrvatske u europskom istraživačkom i obrazovnom prostoru
- Uz strukturne i druge razvojne promjene na sveučilištima svi moramo napraviti više na mobilizaciji (edukaciji) kadrova za moderno sveučilište i društvo općenito
- Promjene koje nas očekuju neće biti lagane, ali se moraju temeljiti na izvrsnosti znanstvenog, stručnog i nastavnog rada
- Nema mjesta pesimizmu iako bi bilo pogrešno i opasno stvarati privid da nema problema.

➢ Moramo se izboriti ne samo za više kriterije već i za bolji status znanosti i struke jer ćemo jedino tako razviti kvalitetnu znanost.

The Center for Antibody Production Rijeka: Upgrading the Central Research and Service Infrastructure for the South Eastern Region of Europe

CAPRI2010

- **Natječaj**: FP7-REGPOT-2008-1
- **Rok za prijavu**: 14.03.2008.
- **Zatraženi iznos**: EUR 712.700
- **Trajanje projekta**: 36 mjeseci
- **Primitak ESR-a**: 19.06.2008.
- **Broj bodova**: 14,5/15
- **Poziv na pregovore**: 10.07.2008.
- **Početak projekta**: 01.03.2009.
- **Odobreni iznos**: EUR 619.770

Proposal structure

1. Scientific and/or technical quality, relevant to the topics addressed by the call
2. Implementation
3. Impact
4. Ethical issues

Annex 1: CVs of the researchers involved in CAPRI2010

Annex 2: Letters of Support

Proposal structure

1. Scientific and/or technical quality, relevant to the topics addressed by the call

2. Implementation

3. Impact

4. Ethical issues

Annex 1: CVs of the researchers involved in CAPRI2010

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Section **1. Scientific and/or technical quality**

1.1. Concept and objectives

The CAPRI2010 project will improve the status of the Center for Proteomics by:

- upgrading its existing S&T potential (establishment of complete work-flow line)
- mobilizing human resources
- broadening and tightening the already prominent strategic partnerships

CAPRI2010

Section **1. Scientific and/or technical quality**

1.1. Concept and objectives

It will add a significant contribution to the regional development through:

- raising the competitiveness of the human research potential in the region
- development of the European Research Area as a whole
- strengthening the dissemination of the scientific information and research results
- facilitation of the communication on the regional and European levels

CAPRI2010

Section **1. Scientific and/or technical quality**

1.1. a) Scientific and technological capacity of the Center for Proteomics (*strengths*)

GRANT / COLLABORATORS	ACHIEVEMENT / STATUS
Croatian Ministry of Science, Education and Sports Grant, JEZGRA 17	The Center established 02.03.2006 / Finished
EU-FP6-2002-INCO-WBC/SSA-3 Grant, Contract no: INCO-026278, CAPRI / Max von Pettenkofer Institute, Munich, University of Mostar	mAb production established / In progress till June 2008
FP6 Marie Curie Research Training Networks Grant, Contract No: MRTN-CT-2005 – 019248 / Medizinische Universität Wien	Joint publications Two-way secondments organized / In progress till December 2009
Unity through Knowledge Fund (UKF), Contract No: 08/07 / Ohio State University, Columbus	Started in December 2007 / In progress till December 2010
National Foundation for Science, Higher Education and Technological development of the Republic of Croatia, Contract No: 04/16 / Max von Pettenkofer Institute, Munich	Starting in March 2008

A list of collaborators of the Center for Proteomics

No.	COLLABORATOR	INSTITUTION	TOPIC	ACHIEVEMENTS
1	Prof. Juergen Haas	Max von Pettenkofer Institute, Munich	a) develop recombinant fusion protein b) mAbs to entire VZV proteins	a) completed b) almost completed
2	Prof. Ulrich Koszinowski	Max von Pettenkofer Institute, Munich	Development of mAbs to viral immunoevasins to MHC I and NKG2d ligands	J. Exp. Med. 190: 1285-1295, 1999; Nat. Immunol. 3:529-35, 2002; J.Virol. 82:2056, 2008; J.Virol. 81: 13825, 2007
3	Prof. Filip Culo	Medical Faculty, University of Mostar	Education of Ph.D. students, lab engineers and technicians	Education of two Ph.D. students and a lab technician
4	Prof. Hartmut Hengel	Heinrich-Heine University, Duesseldorf	mAbs against CMV proteins on the surface of infected cells	J. Exp.Med.201 211-220; 2005 J. Virol.79 (2005) 2920-30; J. Exp.Med. 203 (2006) 1843-50
5	Prof. Martin Messerle	Medical School, Hannover	mAbs to sets of MCMV and HCMV	In progress
6	Prof. William J Britt	University of Alabama, Birmingham	Focus on CNS and viral proteins involved in the pathogenesis of prenatal CMV infection	J. Exp. Med. 205(2) 423-35, 2008
7	Dr. Sebastian Voigt	Robert Koch-Institute, Berlin	mAbs against viral chemokines and cytokines	In progress
8	Dr. Joanne Trgovcich	Ohio State University, Columbus	Reveal specific mechanisms by which herpesviruses cause disease	mAbs to HCMV and MCMV antigens - in progress
9	Prof. Sinisa Volarevic	Medical Faculty, University of Rijeka	mAbs to ribosomal proteins	In progress

A list of collaborators of the Center for Proteomics

No.	COLLABORATOR	INSTITUTION	TOPIC	ACHIEVEMENTS
10	Prof. Helmut E. Meyer	Ruhr-Universität Bochum, Medizinisches Proteom-Center	mAbs for analysis of pancreatic tumor	Completed
11	Dr. Tvrtko Smital	Ruder Boskovic Institute, Zagreb	mAbs to ABC transport proteins for studies in ecotoxicology	In progress
12	Prof. Ana Marušić	Medical Faculty Zagreb	mAbs to glycosfingolipids	In progress
13	Dr. Renata Mazuran	Institute of Immunology, Zagreb	Development of tests for neurovirulence of viral vaccines on an animal virus model	In progress
14	Prof. Ofer Mandelboim	The Hebrew University Jerusalem	mAb to cell surface markers on mouse and human NK cells	Altogether 18 new mAbs against NK receptors and their ligands
15	Prof. Mathias Mueller	Veterinaermedizinische Universitaet Wien	mAbs to Jak-Stat	J. Immunol. 175(6):4000-4008, 2005
16	Dr. Alberto Visioli	StemGen, Milan	mAbs to neuro-stem cells	completed
17	Dr. David Margulies	Laboratory of Immunology, NIAID, Maryland	Generation of viral MHC I like proteins for studies in structural biology	J Biol Chem. 282(48):35247-58, 2007

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Section **1. Scientific and/or technical quality**

Detailed scientific and technological objectives of CAPRI2010

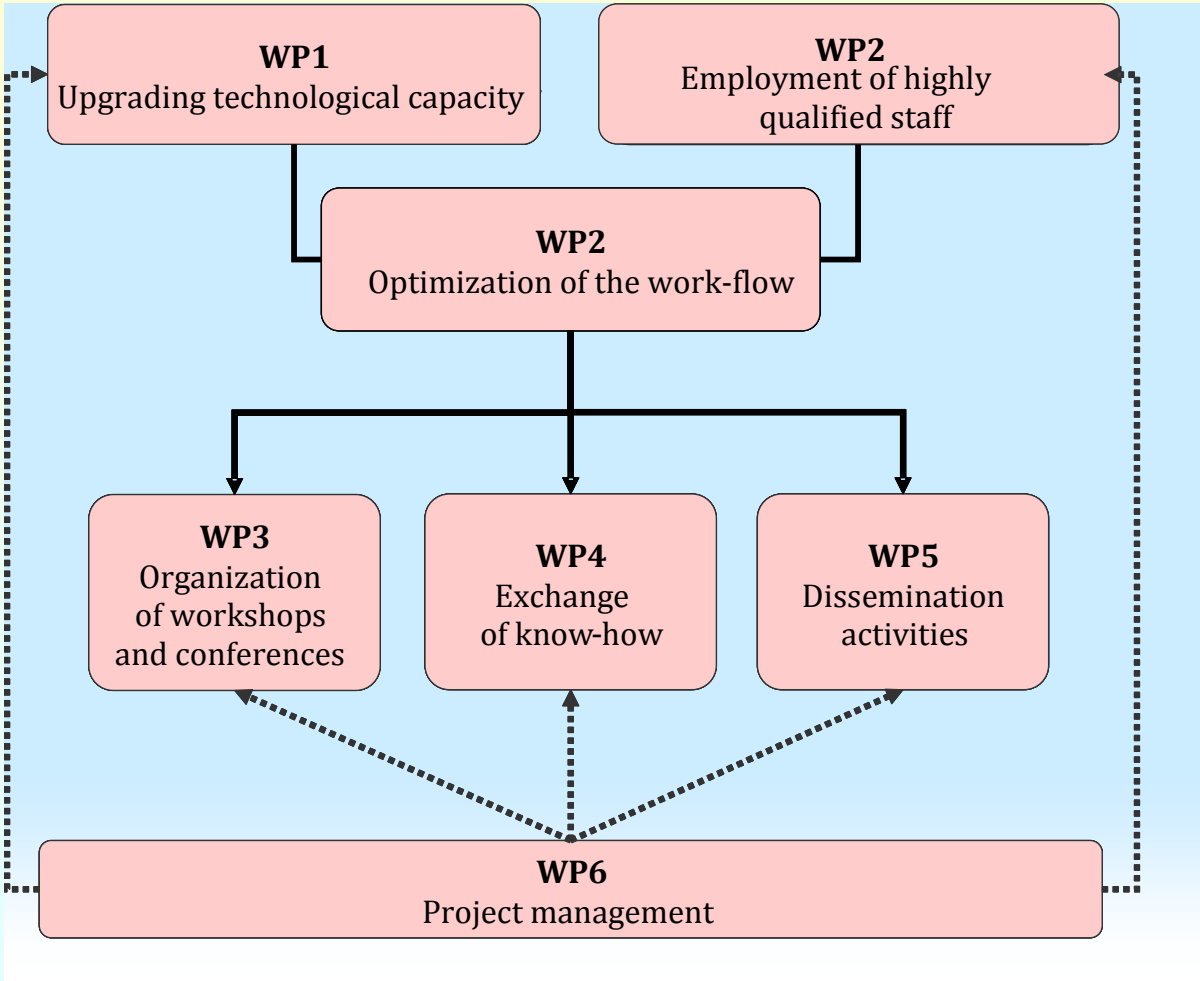
- **Objective 1**: *Upgrading the existing technological capacities*
- **Objective 2***: Recruitment of research personnel who will optimize the Center's workflow and disseminate its potential*
- **Objective 3:** *Facilitation of knowledge transfer*
- **Objective 4:** *Exchange of know-how and experience*
- **Objective 5:** *Increasing the visibility of the Center for Proteomics*

"Razbijeni" na Radne pakete (Work Packages)

CAPRI2010

Section **1. Scientific and/or technical quality**

iv) A graphical presentation of the components and their interdependencies (Pert diagram)



KOMENTARI EVALUATORA
Kriterij 1: Scientific & Technological Excellence

(max: 5 bodova; prolaz: 3/5)

- **Centar za proteomiku je entitet s visokom znanstvenom izvrsnošću**
- **Glavni cilj projekta je dovesti na višu razinu kapacitete za produkciju monoklonskih protutijela i proteomiku**
- **Zadaci unutar svakog cilja su dobro definirani**
- **Radni paketi su usklađeni s mjerama zadanim od strane EK**
- **Izvrsna SWOT analiza**
- **Ekspertiza znanstvenika angažiranih na projektu**
- **Iskustvo na FP6 projektima**
- **Potencijalna opasnost da produkcija monokl. protutijela postane sržna aktivnost (što već nude komercijalne kompanije) pada u drugi plan s obzirom da novi planovi (uključujući produkciju fuzijskih proteina) Centru daju novu dimenziju**

Ocjena: 5

Proposal structure

1. Scientific and/or technical quality, relevant to the topics addressed by the call
2. **Implementation**
3. Impact
4. Ethical issues

Annex 1: CVs of the researchers involved in CAPRI2010

Annex 2: Letters of Support

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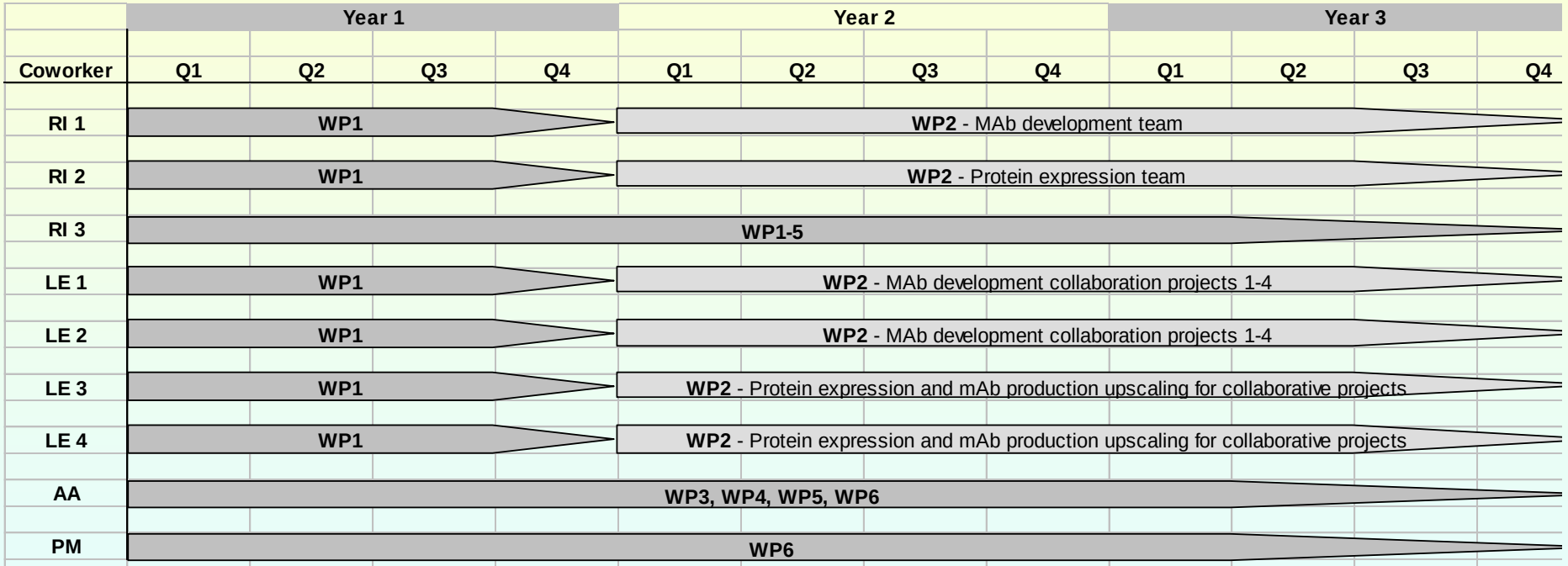
Section **2. Implementation**

2.1 Management and organisational structure and procedures



Legend:
RI = Research Investigator
LE = Lab Engineer
AA = Administrative Assistant
PM = Project manager

WP1: Upgrading technological abilities
WP2: Recruitment of research personnel for workflow optimization
WP3: Organizing workshops, seminars and conferences
WP4: Exchange of know-how in mAb development and protein expression/analysis
WP5: Dissemination activities
WP6: Project management

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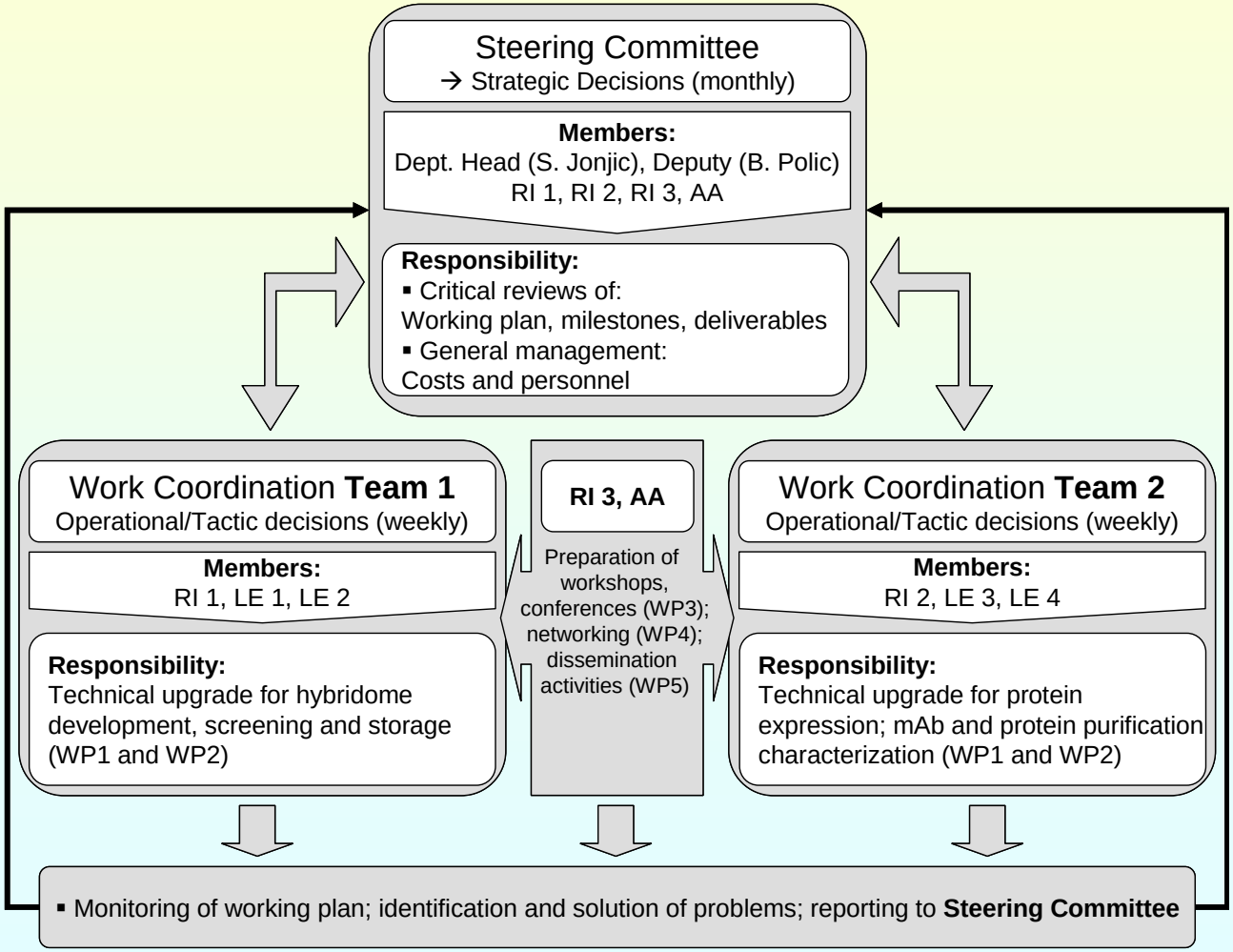
Section **2. Implementation**

2.1 Management and organisational structure and procedures



KOMENTARI EVALUATORA
Kriterij 2: Implementation & Management

(max: 5 bodova; prolaz: 3/5)

- **Pertov dijagram kao i menadžerska struktura su adekvatno i jasno razrađeni**
- **Mali nedostatak: većina znanstvenika će samo djelomice raditi na ovom projektu, što bi moglo dovesti do problema u upravljanju vremenom**
- **Koordinacija projekta uključuje nekoliko iznimno kvalificiranih znanstvenika s Fakulteta, o čemu svjedoče impresivne liste publikacija u vrhunski rangiranim časopisama u području imunologije**
- **Ekspertiza cijelog tima je dobro usklađena s radnim planom**
- **Budžet je vrlo dobro izbalansiran i usklađen**

Ocjena: 4,5

Proposal structure

1. Scientific and/or technical quality, relevant to the topics addressed by the call
2. Implementation
3. **Impact**
4. Ethical issues

Annex 1: CVs of the researchers involved in CAPRI2010

Annex 2: Letters of Support

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Section **3. Impact**

- Važno: **Compliance with the expected impacts listed in the Work programme:**

- *Upgrading the RTD capacity and capability*
- *Better integration of the Center for Proteomics, Medical Faculty, University of Rijeka in the European Research Area as a whole*
- *Contribution to regional capacity building*
- *Improvement of the potential of the Center for Proteomics to participate in FP7 projects*

Opisati na koji način će se učinci projekta poklapati s učincima navedenim u Radnom programu

KOMENTARI EVALUATORA

Kriterij 3: Potential impact through use of project results

(max: 5 bodova; prolaz: 3/5)

- **Ovaj projekt imat će visok učinak ne samo u Jugoistočnoj, već u cijeloj Europi, a posebno za Medicinski fakultet Sveučilišta u Rijeci**
- **Trebala bi biti razmotrena mogućnost "spinning out"-a tehnologije**
- **ERA je ovdje već prisutna kroz FP6 i druge projekte**
- **Diseminacijski plan je kvalitetan**
- **Zaštita intelektualnih prava vlasništva (IPR) se ne spominje**

Ocjena: 5

CAPRI2010 – gdje smo danas?
Rezultati (deliverables)

Del. no.	Deliverable name	WP no.	Delivery date
D1	Administrative and financial support; Improvement of IT and conference capacities	WP6	March – May 2009
D2	Website upgrade and dissemination policy	WP5	May 2009
D3	Staff recruitment	WP2	March 2009; March 2010

CAPRI2010 – gdje smo danas?
Rezultati (deliverables)

Del. no.	Deliverable name	WP no.	Delivery date
D4	Purchase and establishment of equipment for optimization of hybridoma production and screening	WP1	January 2010
D5	Establishment and testing of new equipment for mAb purification, mAb characterization and protein analysis	WP1	May – June; August 2009

CAPRI2010 – gdje smo danas?
Rezultati (deliverables)

Del. no.	Deliverable name	WP no.	Delivery date
D6	Trainings for qualified research staff (trainers: David Margulies, NIH-NIAID, USA, Mirko Trilling, Heinrich-Heine-University, Düsseldorf)	WP4	April-May 2010
D8	Two-way short-term visits between the Center and partner organizations in the EU and the Region (Incoming: William J Britt, University of Alabama at Birmingham, USA, Torsten Sacher, Max von-Pettenkofer Institut, LMU, Munchen, Germany)	WP4	May 2010

CAPRI2010 – gdje smo danas?
Rezultati (deliverables)

Del. no.	Deliverable name	WP no.	Delivery date
D10	Hybridoma and mAb database upgrade	WP1	May 2010
D11	Purchase and testing of new equipment for protein expression with already existing vectors	WP1	In progress

CAPRI2010 – gdje smo danas?
Rezultati (deliverables)

Del. no.	Deliverable name	WP no.	Delivery date
D13	Two-week laboratory workshops	WP3	Planned for summer 2010
D14	Annual seminars-conferences (guest speakers: Prof. Wayne Yokoyama, *Washington University School of Medicine St. Louis, MO;* Prof. Mariapia Degli-Esposti, *Lions Eye Institute, Western Australia, Australia*)	WP3	April 2010

CAPRI2010 – gdje smo danas?
Rezultati (deliverables)

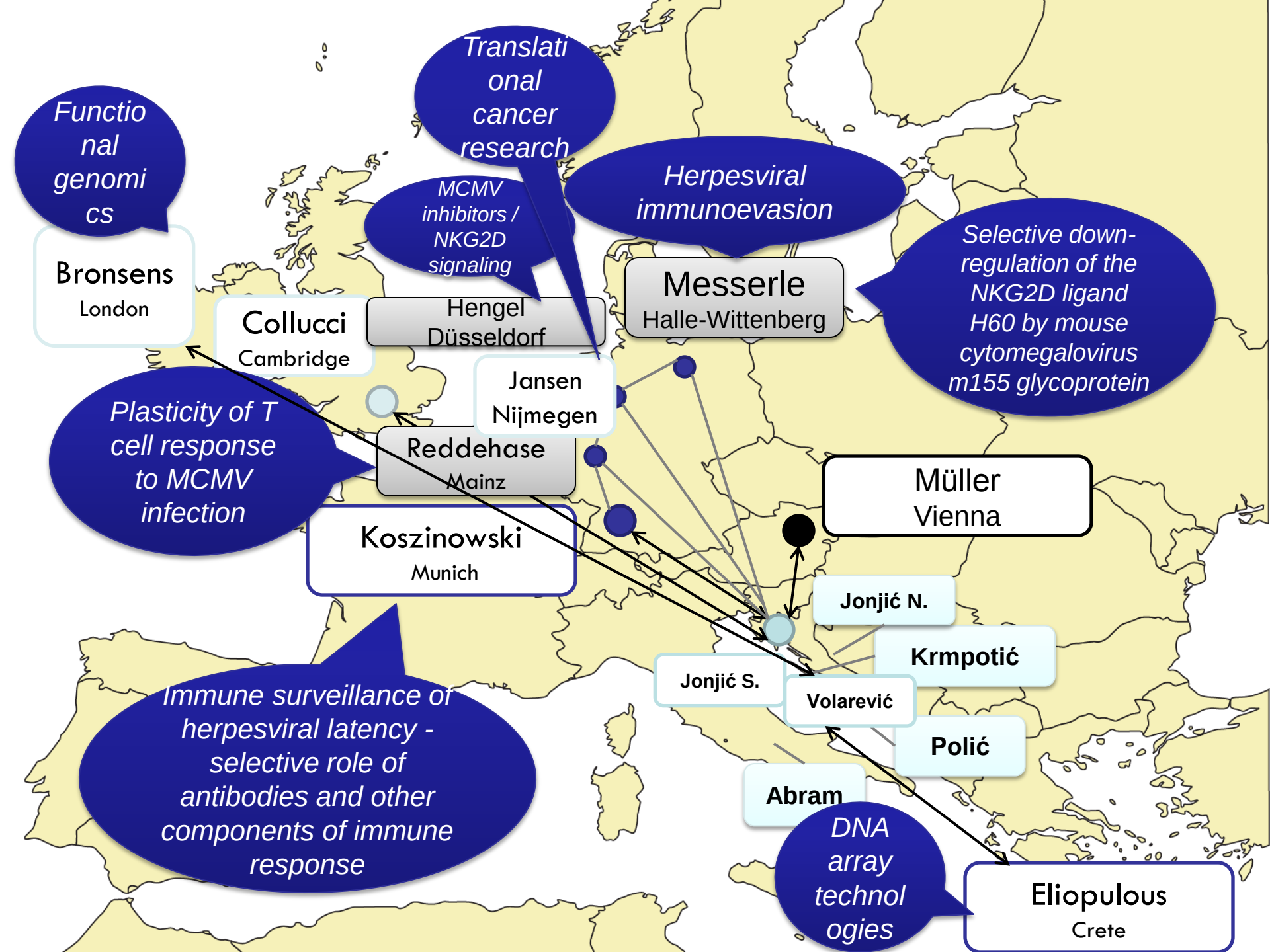
Del. no.	Deliverable name	WP no.	Delivery date
D16	Article in prestigious scientific journal The interaction of TIGIT with PVR and PVRL2 inhibits human NK cell cytotoxicity. **Proc Natl Acad Sci U S A**. 2009, 106(42):17858-63 Direct interaction of the mouse cytomegalovirus m152/gp40 immunoevasin with RAE-1 isoforms, **Biochemistry**, 2010 Mar 23;49(11):2443-53. The third ITIM motif of CD300a is important for its inhibitory signal, **J. Immunol**. In press.	WP5	October 2009, March 2010, June 2010

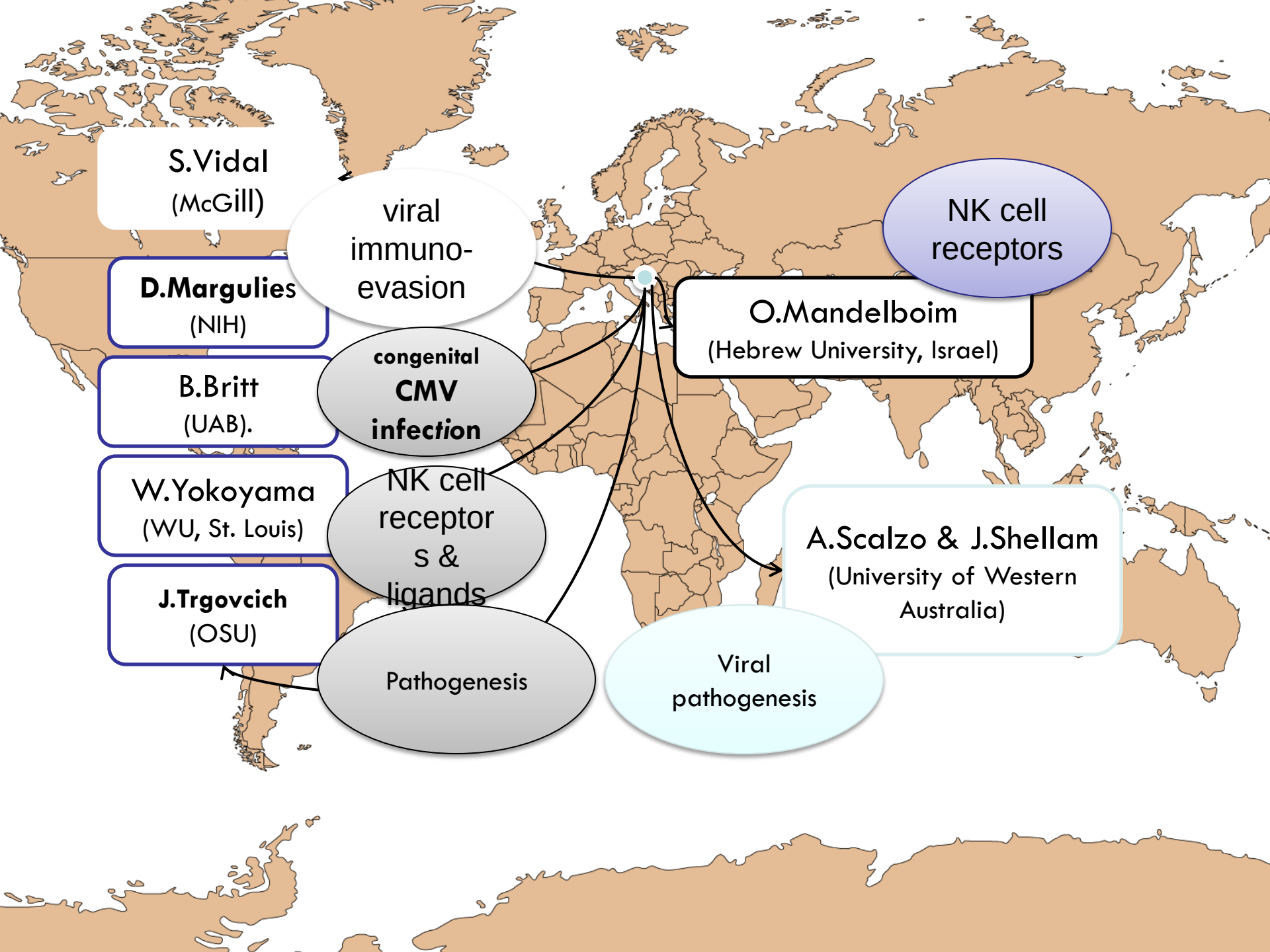
Hvala na pažnji!

CAPRI2010 i *TransMedRi*

Zašto smo uspjeli?

- Visoka znanstvena prepoznatljivost
  - Preko 60 radova u časopisima visokog IF
  - Dobra prepoznatljivost u područjima (preko 5000 citata)
  - Solidna tehnološka opremljenost i visoka ekspertiza u nekim područjima (npr. animalni modeli)
  - Odlična umreženost u međunarodnu znanstvenu zajednicu
    - Preko 20 suradničkih laboratorija (EU, SAD, Kanada, Australija)


Translational cancer research
Functional genomics
MCMV inhibitors / NKG2D signaling
Herpesviral immunoevasion
Selective down-regulation of the NKG2D ligand H60 by mouse cytomegalovirus m155 glycoprotein
Bronsens
London
Collucci
Cambridge
Hengel
Düsseldorf
Messerle
Halle-Wittenberg
Jansen
Nijmegen
Plasticity of T cell response to MCMV infection
Reddehase
Mainz
Müller
Vienna
Koszinowski
Munich
Jonjić N.
Krmpotić
Jonjić S.
Volarević
Polić
Abram
Immune surveillance of herpesviral latency - selective role of antibodies and other components of immune response
DNA array technologies
Eliopulous
Crete


S.Vidal
(McGill)
viral immuno-evasion
NK cell receptors
D.Margulies
(NIH)
O.Mandelboim
(Hebrew University, Israel)
congenital CMV infection
B.Britt
(UAB).
W.Yokoyama
(WU, St. Louis)
NK cell receptors & ligands
A.Scalzo & J.Shellam
(University of Western Australia)
J.Trgovcich
(OSU)
Pathogenesis
Viral pathogenesis

TransMedRi

Strength 2: Established international research collaboration

D. Rukavina & *21 consortium members*
EU FP6 NoE

S. Jonjić & *10 consortium members*
EU FP6 Marie Curie Research Training Networks

B. Polić & *27 consortium members*
EU FP6 CA

T. Frančišković & *7 consortium members*
EU FP6 STREP

S. Volarević
SNSF-SCOPES

S. Volarević & Z. Dembić
University of Oslo
Unity through Knowledge Fund (UKF)

S. Jonjić & W. J. Britt
University of Alabama, Birmingham
RO1, National Institutes of Health (NIH)

S. Jonjić & J. Haas
Max von Pettenkofer Institut
Nacionalna zaklada za znanost, visoko obrazovanje i tehnologijski razvoj RH

B. Polić & U. Koszinowski
Max von Pettenkofer Institut
Nacionalna zaklada za znanost, visoko obrazovanje i tehnologijski razvoj RH

B. Polić & A. Porgador
Hebrew University Jerusalem
Cro-Israel joint research program

T. Frančišković & *8 consortium members*
EU FP6 INCO

S. Jonjić & J. Haas & F. Čulo
Max von Pettenkofer Institut
Medicinski fakultet Mostar
EU FP6 INCO

S. Volarević & *20 consortium members*
EU FP7 CP

S. Jonjić & J. Trgovcich
Ohio State University Columbus
Unity through Knowledge Fund (UKF)

S. Jonjić & O. Mandelboim
Hebrew University Jerusalem
Cro-Israel joint research program

A. Krmpotić
HHMI

TransMedRi

***Strength*: Competitive research groups and departments at the Faculty of Medicine University of Rijeka relevant to this proposal:**

Developmental and tumor biology

Viral immunosurveilance and pathogenesis

Bacterial pathogenesis

Immunology of reproduction

Cell physiology

Simptoms and outcome of congenital HCMV disease in newborns

Simptoms of congenital HCMV disease of developing CNS:

microcephaly

seizures

lethargy

mortality rate of about 30% in most severely affected infants

Long term outcome in the child: perceptual and psychomotor impairment

deafness or hearing impairment

visual deficit or blindness

mental retardation

autism, learning disabilities

cerebral palsy, epilepsy

Ross S. and Boppana S. *Sem in Ped Infect Dis,* 2004

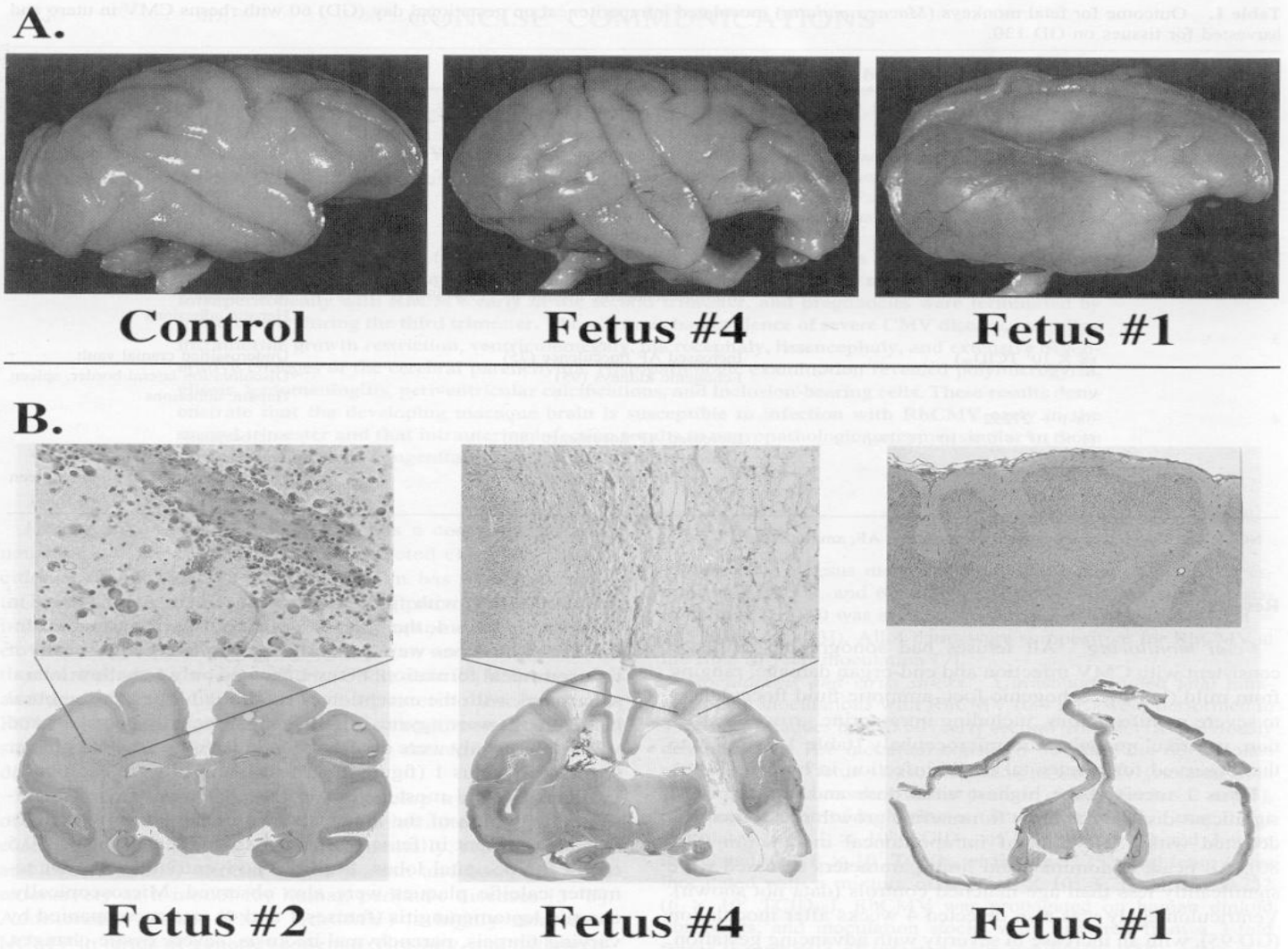
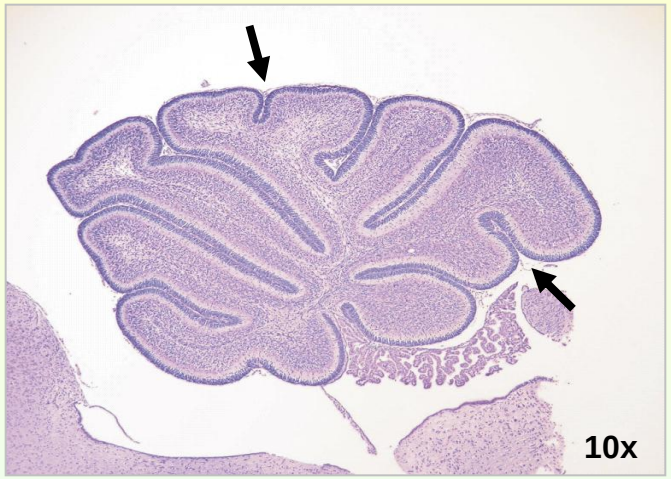
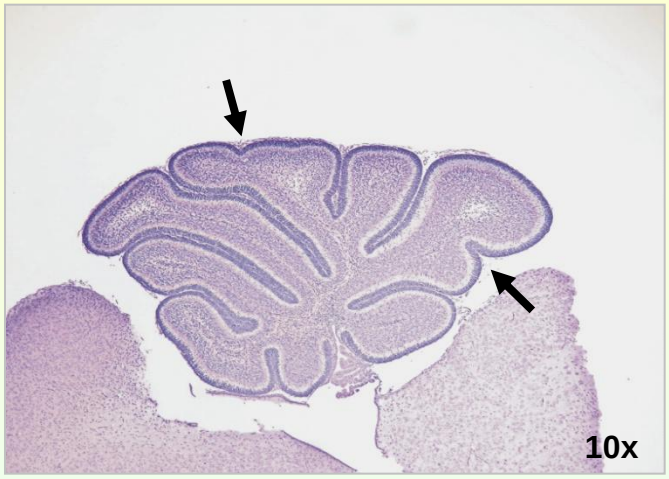


Figure 1. **A**, Lateral view of cerebral hemisphere of age-matched control (Control), fetus 4, and fetus 1. Note almost complete lack of sulci and gyri (lissencephaly), particularly in occipital, temporal, and parietal lobes for fetus 1. Posteriorly, cerebral mantle was extremely thin (~2 mm). **B**, Hematoxylin-eosin–stained brain sections of fetuses 2, 4, and 1. Lower magnifications (1×) are at bottom, and higher magnifications (10, 20, and 40×, respectively) are at top. Illustrated are examples of focal areas of rhesus CMV inclusions (fetus 2); white-matter pallor and degeneration (fetus 4); and polymicrogyria and almost complete absence of white matter (fetus 1).

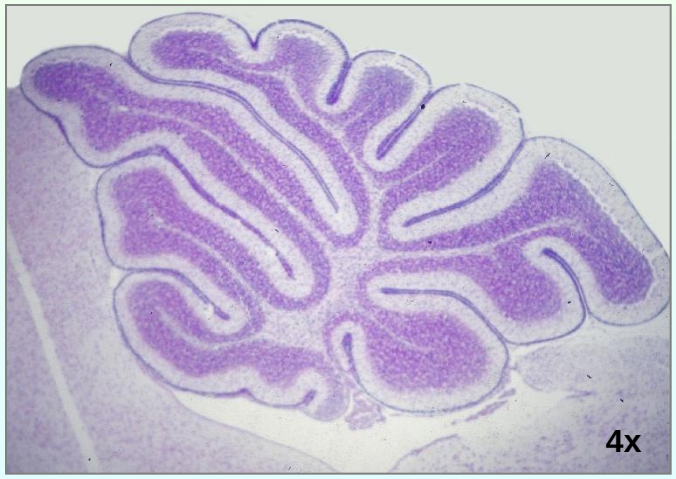
Impaired cerebellar development in MCMV-infected newborn mice

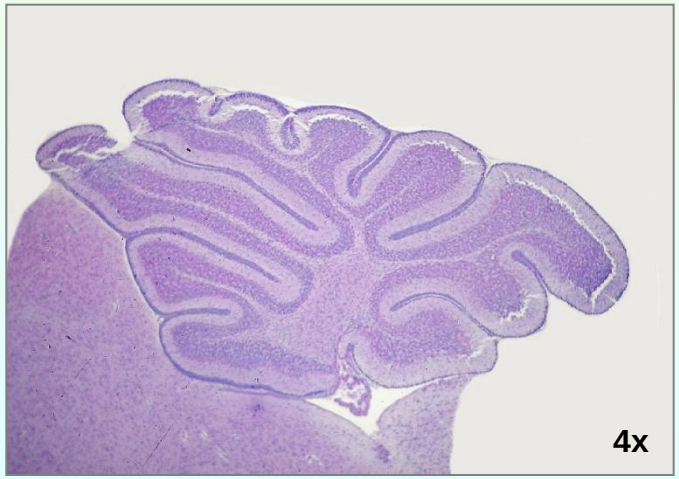
1. Delayed development of cerebellar folia and decreased cerebellar area





day 8 p.i.





day 17 p.i.

uninfected mouse

infected mouse

The Committee for Vaccine Development at the Institute of Medicine (IOM, The National Academies, Washington DC) ranked HCMV vaccine, aimed to prevent congenital HCMV infection, one of the seven candidate vaccines of highest priority (Arvin 2004).

WP3: Congenital viral infections – facilitating clinical studies and pathogenesis

Objectives

1. To develop research group with interests in diagnosis, treatment, and prevention of perinatal infections that can translate patient care related priorities into sustainable research program.
2. To expand the diagnostic capabilities of clinical laboratories in Rijeka for detection of agents associated with perinatal CNS infections**.**
3. To upgrade research capacities for studying the immunobiology and pathogenesis of congenital abnormalities of the CNS caused by viral infections in both experimental models and in human populations.
4. To develop a foundation for clinical trials in perinatal infections that could be supported by both governmental and pharmaceutical funding.

WP3: Congenital viral infections – facilitating clinical studies and pathogenesis

Perinatal infections that will be targeted by this program will include:

(1) Human Cytomegalovirus,
(2) Herpes Simplex Virus,
(3) Human Parvovirus,
(4) Human enteroviruses and
(5) Human hepatitis B and C viruses.

WP3: Congenital viral infections – facilitating clinical studies and pathogenesis

Activities

1. Recruitment of experienced research personnel.

2. Procurement of research equipment and establishment of necessary techniques.

3. Two-way secondments of research personnel.

4. Organization of workshops.

5. Joint grant applications.

WP5: Animal models in translational medicine

Objectives

1. To upgrade the infrastructural and intellectual support the development of animal models for the testing of various strategies to combat tumors and viral infections and for the evaluation of various antiviral preparations.

2. To enhance scientific collaboration on the development of recombinant proteins aimed at specific immunotherapy of tumors and viral diseases.

3. To obtain specific know-how from partner institutions for the development of experimental antiviral vaccines based on recombinant viruses expressing ligands for activating immune receptors.

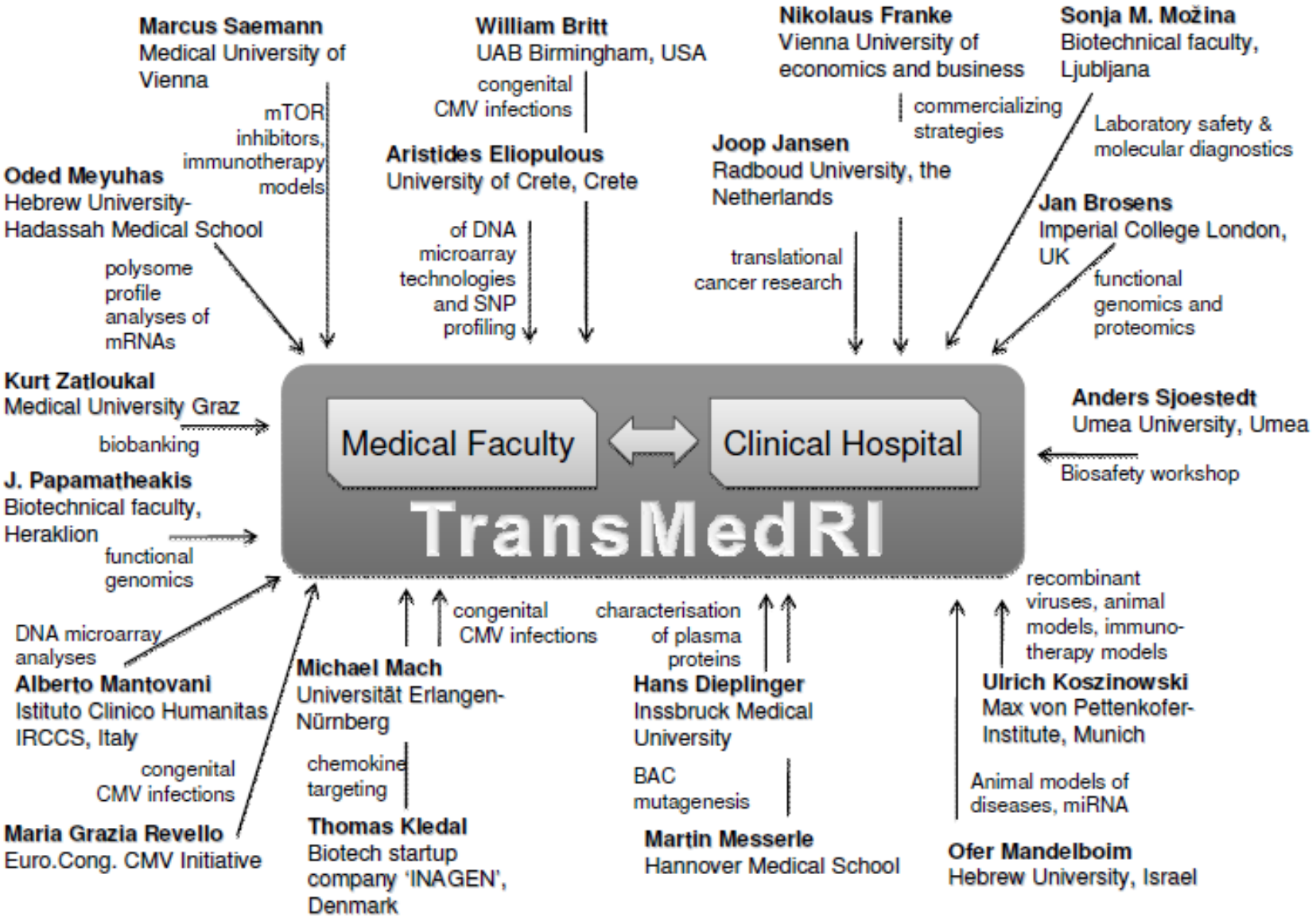
4. To position the well-established animal facility with a large number of conventional and transgenic mouse strains for testing in various aspects of tumor surveillance and tumor immunotherapy as a regional centre of excellence.

5. To acquire new technologies in molecular medicine and virology at partner institutions and implement them at MEDRI

WP4: Strengthening the research capacity of clinical microbiology

Objectives

1. To improve collaboration between departments interested in accurate and rapid detection and control of bacterial infections.
2. To develop professional and research groups' capabilities, to utilize and apply recent research data focused on improved diagnostics, therapy, surveillance and control of bacterial infections in hospital, public health and primary health care settings.
3. To improve microbiological surveillance by modern molecular methods.
4. To collect the data on local antibiotic resistance and improve control measures for its reduction.
5. To upgrade the existing bio-bank of local bacterial strains of interest.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