ERC-StG
ERC-PoC
An applicant's perspective

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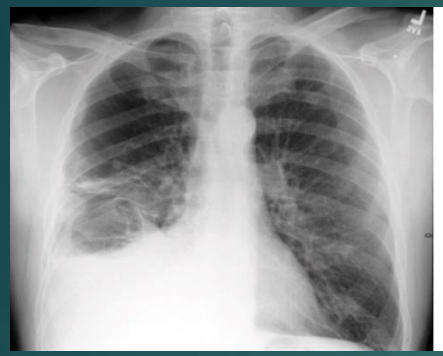
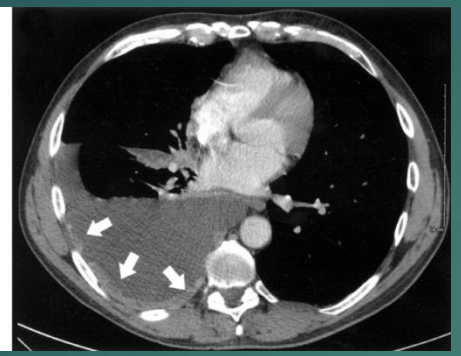
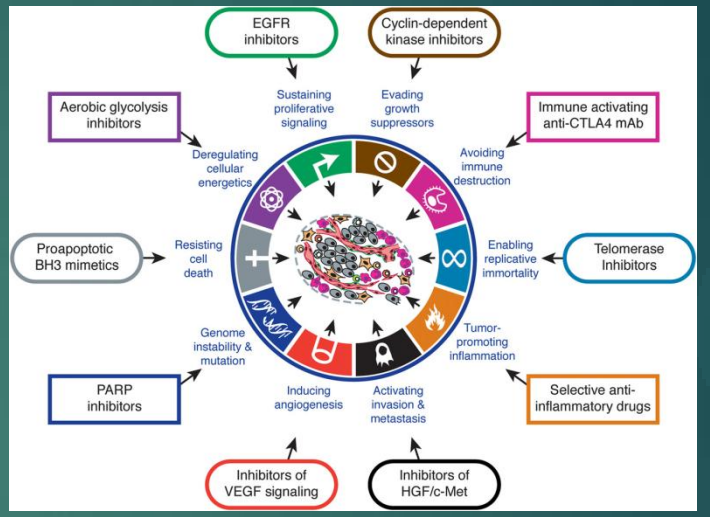
- INTRO INTO RESEARCH FOCUS
- HOW THE ERC CAME INTO MY LIFE
- MY ERC STG STORY
- MY ERC POC STORY
- WHAT I WOULD DO THE SAME ALL OVER AGAIN
- THINGS I WOULD DO DIFFERENTLY

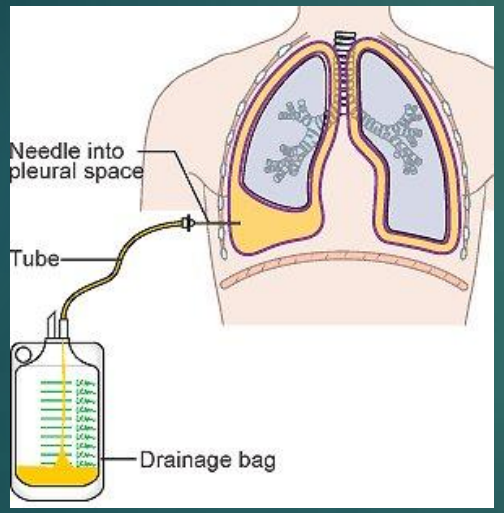
Malignant Pleural Effusion (MPE)

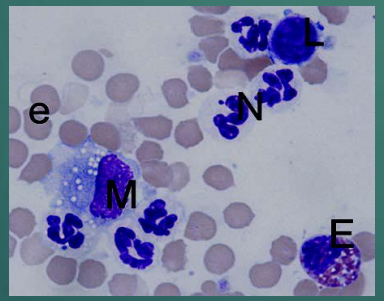
Adverse Event Vs Ca Hallmark

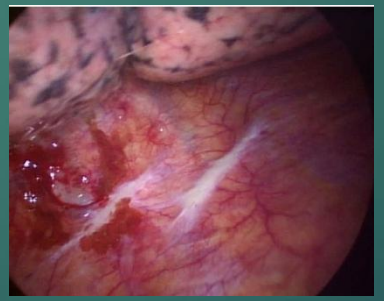


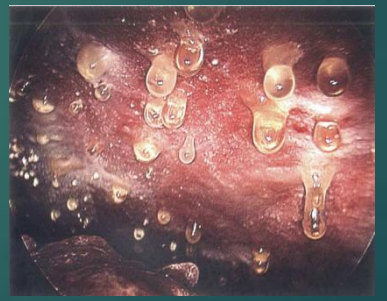












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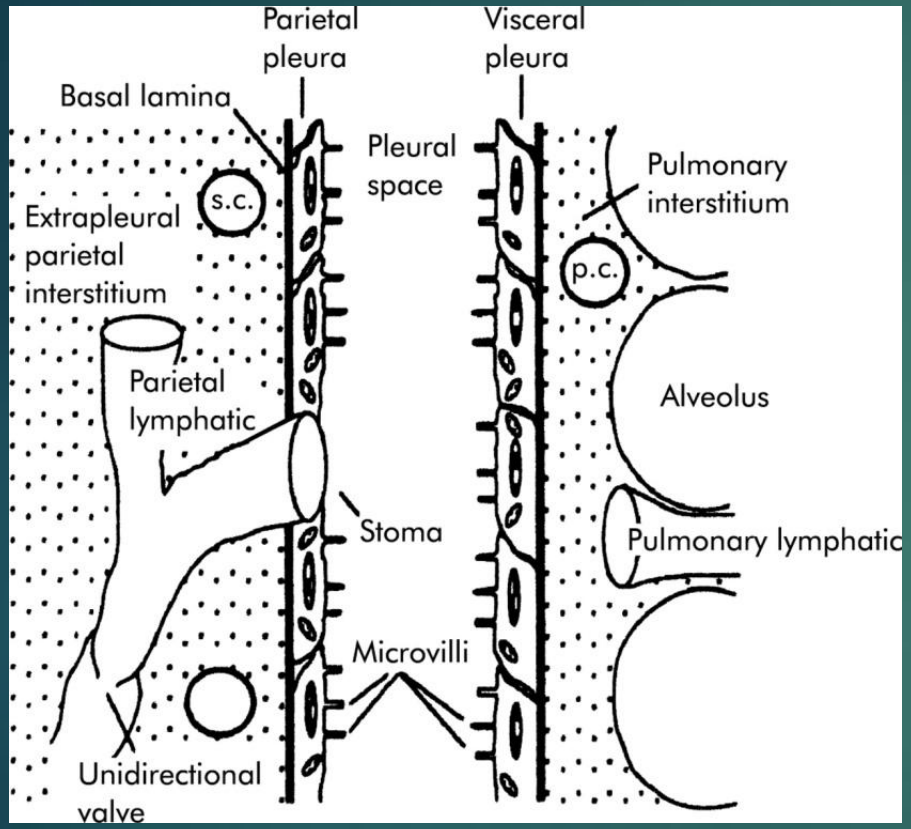
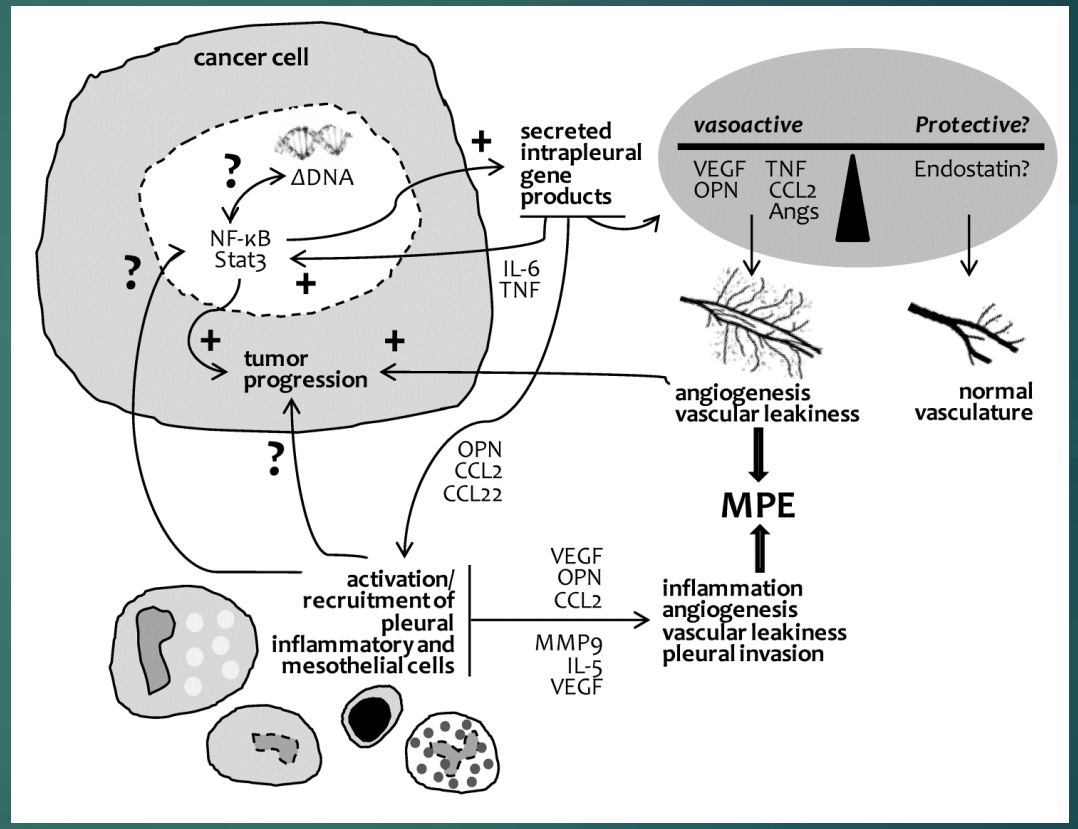
A paradigm for tumor-host interactions?





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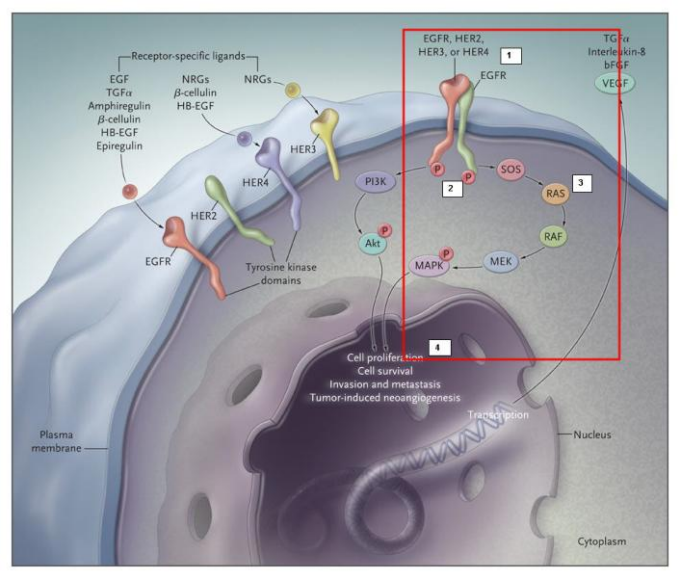
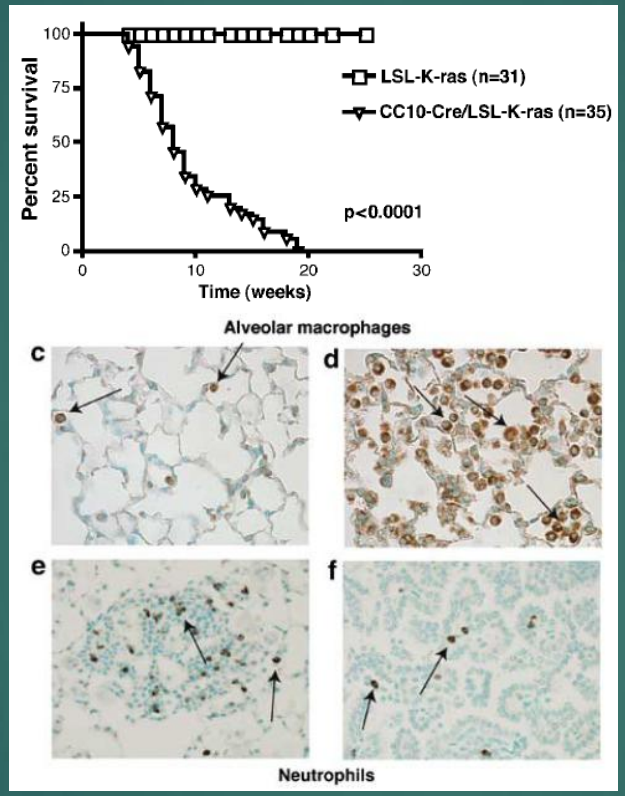
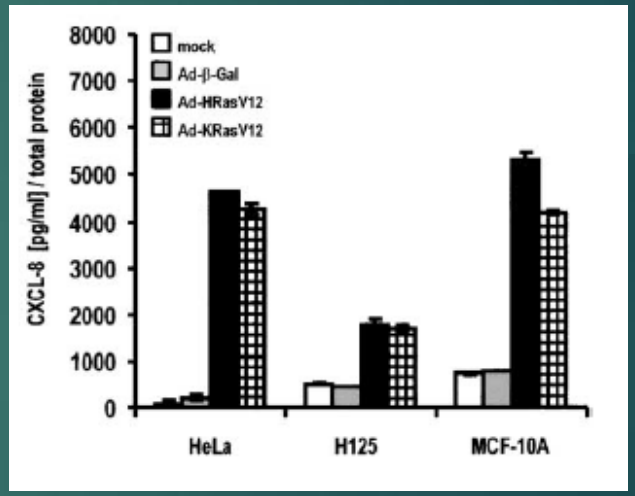
MPE
A molecular culprit of KRAS-driven paracrine signaling?







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INTRO INTO RESEARCH FOCUS

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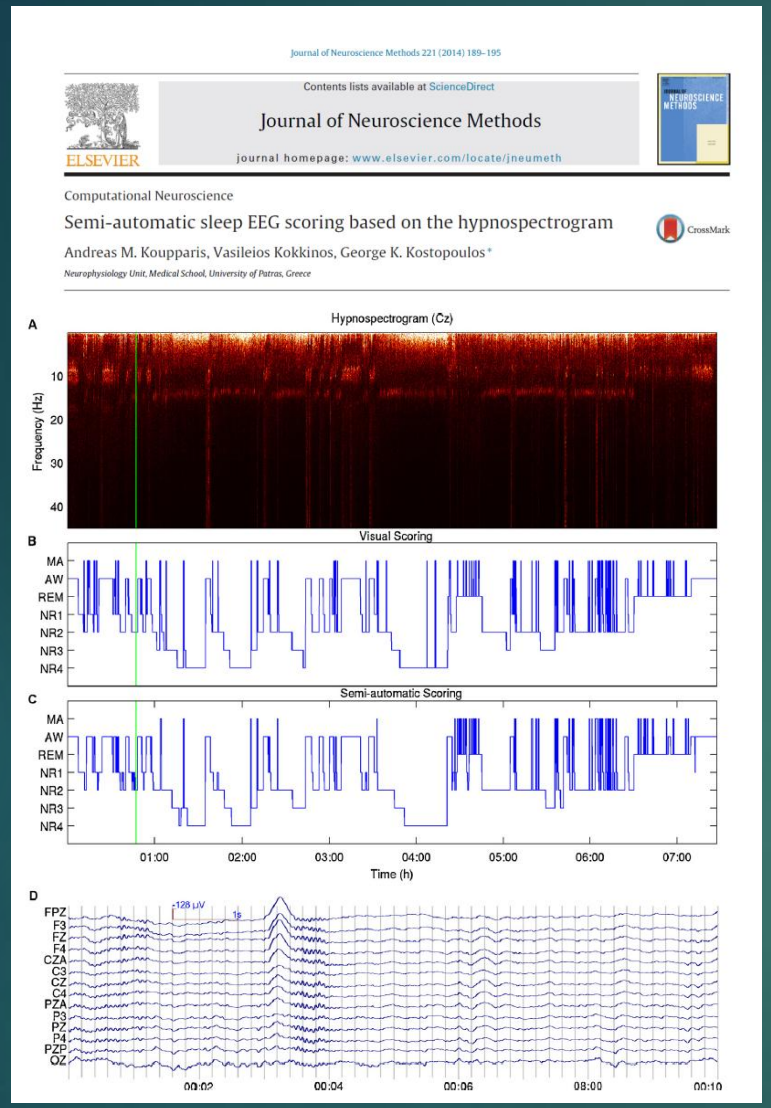

Prof. GK Kostopoulos MD PhD

Chair, Dpt. Of Physiology, Med, UoP

Prof. TS Blackwell MD

Chair, Dpt. Of APCCM, Med, VUMC

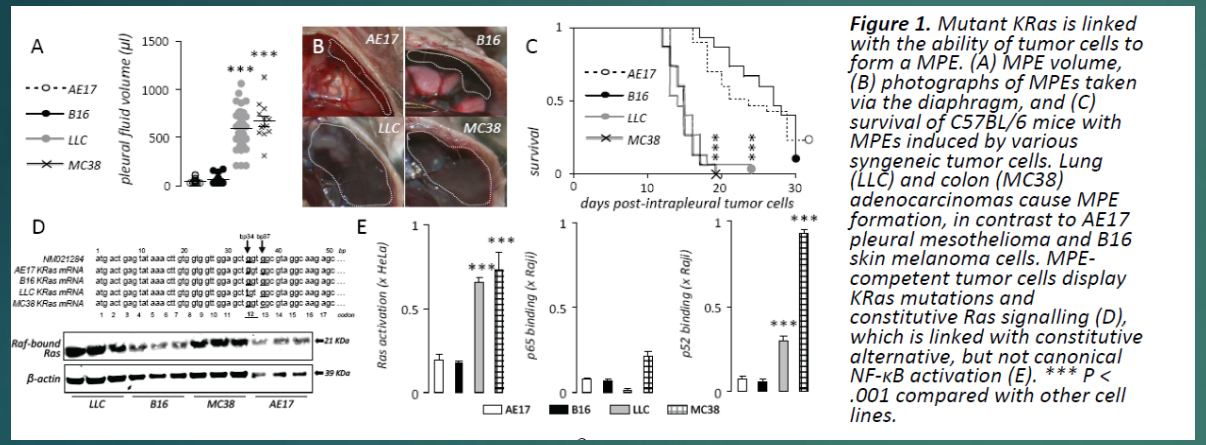

Figure 1. *Mutant KRas is linked with the ability of tumor cells to form a MPE. (A) MPE volume, (B) photographs of MPEs taken via the diaphragm, and (C) survival of C57BL/6 mice with MPEs induced by various syngeneic tumor cells. Lung (LLC) and colon (MC38) adenocarcinomas cause MPE formation, in contrast to AE17 pleural mesothelioma and B16 skin melanoma cells. MPE-competent tumor cells display KRas mutations and constitutive Ras signalling (D), which is linked with constitutive alternative, but not canonical NF-κB activation (E). *** P < .001 compared with other cell lines.*

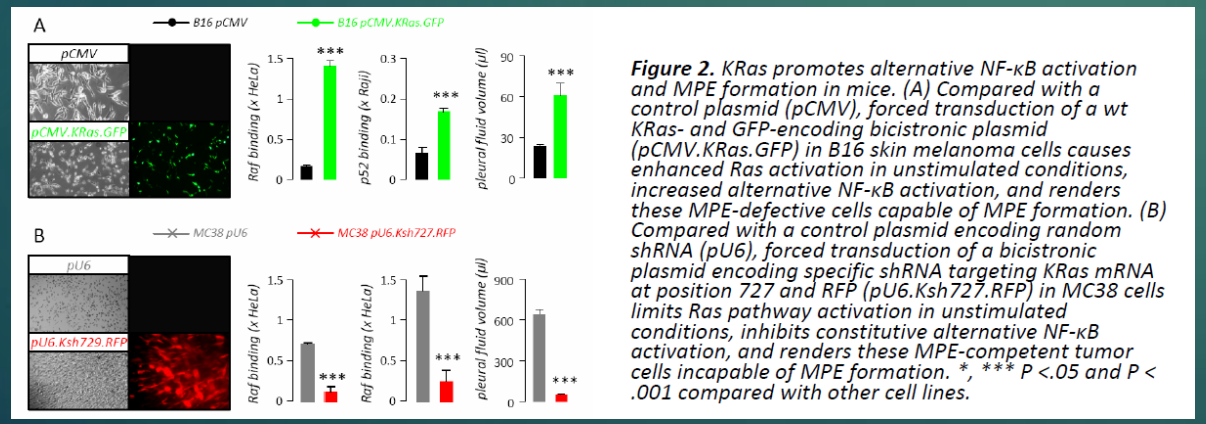

Figure 2. *KRas promotes alternative NF-κB activation and MPE formation in mice. (A) Compared with a control plasmid (pCMV), forced transduction of a wt KRas- and GFP-encoding bicistronic plasmid (pCMV.KRas.GFP) in B16 skin melanoma cells causes enhanced Ras activation in unstimulated conditions, increased alternative NF-κB activation, and renders these MPE-defective cells capable of MPE formation. (B) Compared with a control plasmid encoding random shRNA (pU6), forced transduction of a bicistronic plasmid encoding specific shRNA targeting KRas mRNA at position 727 and RFP (pU6.Ksh727.RFP) in MC38 cells limits Ras pathway activation in unstimulated conditions, inhibits constitutive alternative NF-κB activation, and renders these MPE-competent tumor cells incapable of MPE formation. *, *** P <.05 and P < .001 compared with other cell lines.*

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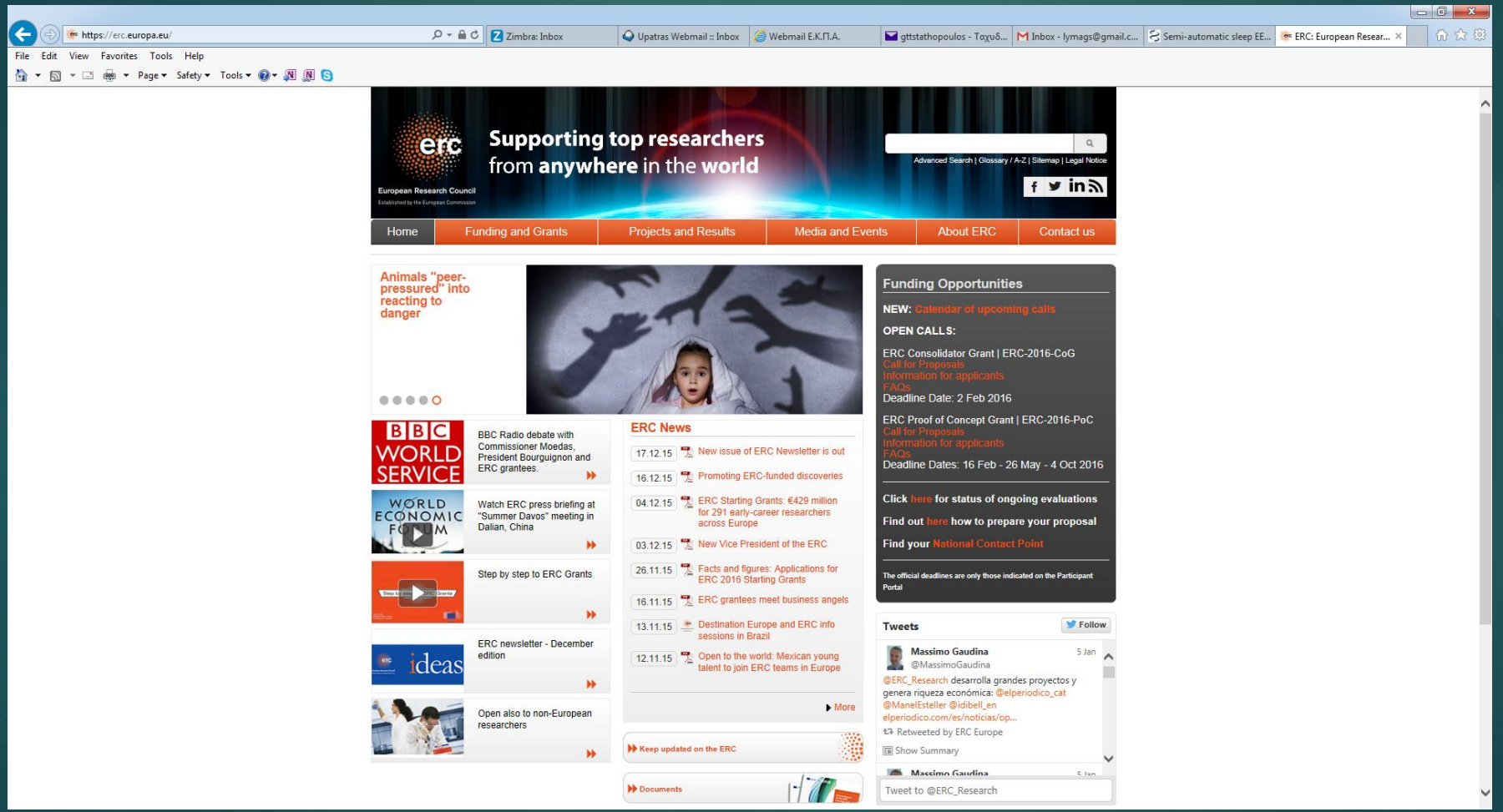
http://www.ekt.gr/
NCP
(CP)

https://erc.europa.eu/
Guide for applicants
Guide for reviewers



Status At ERC Application

EXPATRIATE (US), DEPENDENT RESEARCH

NO NATURE, SCIENCE, CELL PAPER, BUT SEVERAL 1ST AUTHOR MID-RANGE (IF 5-15) PUBLICATIONS INCLUDING JNCI, PNAS, AJRCCM, CANCER RES, ETC.

GENERATED NEW/EXPANDED EXISTING FIELD

CLINICAL RELEVANCE

ERS MAURIZIO VIGNOLA AWARD

UPCOMING REPATRIATION ASST. PROF. POSITION (NOT DEPENDENT ON ERC FUNDING, NO INSTITUTIONAL START-UP)

NO OTHER WAY TO GO

What happened…

JUL 2009: HEARD OF ERC

NOV 2009: APPLIED FOR StG

FEB 2010: 1ST ROUND

MAY 2010: INTERVIEW

OCT 2010: FINAL RESULTS

DEC 2010: GA

FEB 2011: PREFINANCING

APR 2011: START DATE

OCT 2011: EXPERIMENTS

Epilogue

Applying for and (even more so) getting an ERC StG is like entering an arena with lions

- Pressure to get things going
- Pressure to publish high impact and to garner major accomplishments
- Pressure to consolidate the group
- Pressure for continued funding
- Pressure escalates as approaching the CoG schemes

Who u r competing against…

ERC-CoG results 2014

ERC Consolidator Grants 2014 results

Last Name	First Name	Host Institution English Name
ADAMEYKO	Igor	Medical University of Vienna
BOLLBACK	Jonathan Paul	Institute of Science and Technology Austria
MARTENS	Sascha	University of Vienna
STARK	Alexander	The Research Institute of Molecular Pathology
AMANT	Frederic	Catholic University of Leuven
BRAECKMANS	Kevin	Ghent University
LANCELLOTTI	Patrizio	University of Liege
REMAUT	Han	Flanders Institute for Biotechnology (VIB)
SANTORO	Massimo	Flanders Institute for Biotechnology (VIB)
SCHYMKOWITZ	Joost	Flanders Institute for Biotechnology (VIB)
VERSTREKEN	Patrik	Flanders Institute for Biotechnology (VIB)
STEFL	Richard	Masaryk University
SVOBODA	Petr	Institute of molecular genetics of the Czech Academy of Science
BRAUN	Pascal	Technical University of Munich
BRIGGS	John	European Molecular Biology Laboratory

ERC Consolidator Grants 2014 results

Last Name	First Name	Host Institution English Name
SCHNABEL	Renate	University Hospital Hamburg
SELENKO	Philipp	Forschungsverbund Berlin e.V.
SIMONS	Mikael	Max Planck Society
STAFFORST	Thorsten	University of Tübingen
TEICHMANN	Sarah	European Molecular Biology Laboratory
THUM	Thomas	Hannover Medical School
VON KRIEGSTEIN	Katharina	Humboldt University of Berlin
WERNER	Christiane	University of Bayreuth
WIEDEMANN	Nils	University Medical Center Freiburg
ZENDER	Lars	University of Tübingen
CHOUDHARY	Chunaram	University of Copenhagen
KJELDSEN	Frank	University of Southern Denmark
LOOG	Mart	University of Tartu
GARINIS	Georgios	Greek Foundation for Research and Technology

ERC Consolidator Grants 2014 results

Last Name	First Name	Host Institution English Name
MASTER	Emma	Aalto University
MUSTJOKI	Satu	University of Helsinki
AGUILANIU	Hugo	National Center for Scientific Research (CNRS)
ALIZON	Samuel	National Center for Scientific Research (CNRS)
BAJÉNOFF	Marc	National Center for Scientific Research (CNRS)
CASTRIC	Vincent	National Center for Scientific Research (CNRS)
COSSART	Rosa	National Institute of Health and Medical Research (INSERM)
GRANIER	Sebastien	National Institute of Health and Medical Research (INSERM)
GUTSCHE	Irina	National Center for Scientific Research (CNRS)
JARRIAULT	Sophie	CERBM
LEGUBE	Gaelle	National Center for Scientific Research (CNRS)
LIVET	Jean	University Pierre et Marie Curie
PEDUTO	Lucie	Pasteur Institute

ERC Consolidator Grants 2014 results

Last Name	First Name	Host Institution English Name
MILO	Ron	Weizmann Institute of Science
PEER	Dan	Tel Aviv University
SCHULDINER	Maya	Weizmann Institute of Science
SHOHAM	Shy	Technion - Israel Institute of Technology
DEMICHELIS	Francesca	University of Trent
GENOVESIO	Aldo	Sapienza University of Rome
ROMAGNANI	Paola	University of Florence
BAETEN	Dominique	Academic Medical Centre, University of Amsterdam
DARAN-LAPUJADE	Pascale	Delft University of Technology
DE JONG	Hugo	University Medical Center Utrecht
HOLLMANN	Frank	Delft University of Technology
JADDOE	Vincent	Erasmus Medical Center Rotterdam
KLAVER	Caroline	Erasmus Medical Center Rotterdam
MALDA	Jos	University Medical Center Utrecht

ERC Consolidator Grants 2014 results — List of principal investigators – Life sciences — Host institution refers to institution at time of application

Last Name	First Name	Host Institution English Name	Host Institution Local Name	Host Country	Acronym	Project Title	Panel
CARROLL	Jason	University of Cambridge	University of Cambridge	UK	ER_disease	Defining hormonal cross-talk and the role of mutations in estrogen receptor positive breast cancer	LS4
CHARRAS	Guillaume	University College London	University College London	UK	MolCellTissMech	Molecular and cellular determinants of cell monolayer mechanics	LS3
DUPUY	Lionel	The James Hutton Institute	The James Hutton Institute	UK	SENSOILS	Sensing soil processes for improved crop nitrogen bioavailability	LS9
FIRTH	Andrew	University of Cambridge	University of Cambridge	UK	ERVE	Systematic discovery of functional elements in RNA virus genomes: an Encyclopedia of RNA Virus Elements	LS6
GADEGAARD	Nikolaj	University of Glasgow	University of Glasgow	UK	FAKIR	Focal Adhesion Kinetics In nanosurface Recognition	LS9
GRIFFIN	Ashleigh	University of Oxford	University of Oxford	UK	SESE	Social Evolution and Social Engineering of bacterial Infections	LS8
GUDELJ	Ivana	University of Exeter	University of Exeter	UK	MathModExp	The Evolution of Competition and Cooperation: how polymorphisms in microbial populations optimise virulence and mediate drug resistance	LS8
HAJKOVA	Petra	Imperial College of Science, Technology and Medicine	Imperial College of Science, Technology and Medicine	UK	dynamicmodifications	Complexity and dynamics of nucleic acids modifications in vivo	LS2
HUANG	Danny	Beatson Institute For Cancer Research LBG	Beatson Institute For Cancer Research LBG	UK	RING3	Structural and mechanistic insights into RING E3-mediated ubiquitination	LS1
HUSKONEN	Juha	University of Oxford	University of Oxford	UK	BIZEB	Bio-Imaging of Zoonotic and Emerging Bunyaviruses	LS1
HUNTLY	Brian	University of Cambridge	University of Cambridge	UK	COMAL	COMAL COhesin Mutations in Acute Leukemia: from modeling and mechanisms to novel therapeutics	LS7
IANNETTI	Giandomenico	University College London	University College London	UK	PAINSTRAT	Novel neurophysiological techniques to quantify pain and stratify patients	LS7
ISAACS	Adrian	University College London	University College London	UK	C9ND	C9orf72-mediated neurodegeneration: mechanisms and therapeutics	LS5
JEFFERIS	Gregory	Medical Research Council	Medical Research Council	UK	OffSwitch	OffSwitch: Neural circuit switches from molecules to behaviour	LS5
KASER	Arthur	University of Cambridge	University of Cambridge	UK	IMMUNOBIOME	Identifying microbiotal triggers of inflammatory bowel disease through the lens of the immune system	LS7
KAYSER	Christoph	University of Glasgow	University of Glasgow	UK	DynaSens	Understanding the neural mechanisms of multisensory perception based on computational principles	LS5

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DE MEAUX	Juliette	University of Munster
FEUERER	Markus	German Cancer Research Centre
FILLATREAU	Simon	German Rheumatism Research Centre Berlin
FISCHER	André	German Centre for Neurodegenerative diseases
GREB	Thomas	University of Heidelberg
GROSS-HARDT	Rita	University of Bremen
HOCKER	Birte	Max Planck Society
HORNUNG	Veit	University Medical Centre Bonn
HUISKEN	Jan	Max Planck Society
KORN	Thomas	University Hospital Rechts der Isar
LIU	Haikun	German Cancer Research Centre
PILLAI	Ramesh	European Molecular Biology Laboratory
PLESTED	Andrew	Forschungsverbund Berlin e.V.
RINK	Jochen	Max Planck Society
SAUR	Dieter	University Hospital Rechts der Isar

ERC Consolidator Grants 2014 results

Last Name	First Name	Host Institution English Name
CORTÉS LEDESMA	Felipe	Spanish National Research Council (CSIC)
GIRALDEZ	Teresa	University of La Laguna
GONZALEZ	Susana	Spanish National Centre for Cardiovascular Research
GONZÁLEZ BRAVO	Ignacio	Catalan institute of Oncology
GONZALEZ PEREZ	Josefa	Spanish National Research Council (CSIC)
LOPEZ BENDITO	Guillermina	Spanish National Research Council (CSIC)
LOPEZ CORTAJARENA	Aitziber	IMDEA Nanoscience
MAESTRE GIL	Fernando Tomás	King Juan Carlos University of Madrid
MENDEZ-FERRER	Simon	Spanish National Centre for Cardiovascular Research
MENENDEZ	Pablo	Josep Carreras Leukaemia Foundation
TOLEDO	Alejandro	Spanish National Research Council (CSIC)

ERC Consolidator Grants 2014 results

Last Name	First Name	Host Institution English Name
PERROY	Julie	National Center for Scientific Research (CNRS)
PFEFFER	Sebastien	National Center for Scientific Research (CNRS)
RADMAN-LIVAJA	Marta	National Center for Scientific Research (CNRS)
RODRIGUEZ	Raphaël	Curie Institute
RONDELEZ	Yannick	National Center for Scientific Research (CNRS)
SPASSKY	Nathalie	National Institute of Health and Medical Research (INSERM)
SUZANNE	Magali	National Center for Scientific Research (CNRS)
UGOLINI	Sophie	National Institute of Health and Medical Research (INSERM)
TOLIC	Iva	Ruder Boskovic Institute
PAL	Csaba	Biological Research Centre, Hungarian Academy of Sciences
BRENNAN	Lorraine	University College Dublin
GOLDBERG	Joshua	The Hebrew University of Jerusalem
KADENER	Sebastian	The Hebrew University of Jerusalem
LINDELL	Debbie	Technion - Israel Institute of Technology

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Last Name	First Name	Host Institution English Name
VAN RHEENEN	Jacco	Royal Netherlands Academy of Arts and Sciences
HEJNOL	Andreas	Uni Research AS
LOUCH	William	University of Oslo
BARATA	João	Institute of Molecular Medicine, Lisbon
MOITA	Luis	Calouste Gulbenkian Foundation
SILVA PEREIRA	Cristina	ITQB - New University of Lisbon
SILVA-SANTOS	Bruno	Institute of Molecular Medicine, Lisbon
VEIGA FERNANDES	Jose Henrique	Institute of Molecular Medicine, Lisbon
JOHANNESSON	Hanna	Uppsala University
LARSSON	Jonas	Lund University
MAKINEN	Taija	Uppsala University
ORHO-MELANDER	Marju	Lund University
SANDBERG	Rickard	Karolinska Institute
SVENNINGSSON	Per	Karolinska Institute
ALBERT	Joerg	University College London
BASS	Chris	Rothamsted Research Limited

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LUMMAA	Virpi	University of Sheffield	University of Sheffield	UK	Elephant Project	How elephants grow old	LS8
MALLUCCI	Giovanna	Medical Research Council	Medical Research Council	UK	UPR NEURO	The Unfolded Protein Response in Neurodegeneration	LS5
MANICA	Andrea	University of Cambridge	University of Cambridge	UK	LocalAdaptation	Detecting Local Adaptation with Climate-Informed Spatial Genetic Models	LS8
MERCER	Jason	University College London	University College London	UK	UbiProPox	Modulation of the Ubiquitin Proteasome System During Multiple Stages of the Poxvirus Lifecycle	LS6
MORGAN	Craig	King's College London	King's College London	UK	REACH	REACH: Risk, Resilience, Ethnicity and AdolesCent Mental Health	LS7
PAPAVASILIOU	Nina	University of Cambridge	University of Cambridge	UK	RNAEDIT	RNA EDITING IN HEALTH AND DISEASE	LS6
PATTON	Elizabeth	University of Edinburgh	University of Edinburgh	UK	ZF-MEL-CHEMBIO	Chemical Biology in Zebrafish: Drug-Leads and New Targets in the Melanocyte Lineage and Melanoma	LS4
SIEBOLD	Christian	University of Oxford	University of Oxford	UK	CellDyn	Molecular analysis of the Hedgehog signal transduction complex in the primary cilium	LS1
TOLAR	Pavel	Imperial College of Science, Technology and Medicine	Imperial College of Science, Technology and Medicine	UK	BCELLMECHANICS	Regulation of antibody responses by B cell mechanical activity	LS6
TURNER	James	Medical Research Council	Medical Research Council	UK	XChromosome	Functions of the X chromosome in the mammalian germ line	LS3
WILSON	Mark	Medical Research Council	Medical Research Council	UK	miRNA in Immunity	Testing the role of miRNA-mediated non-cell autonomous gene regulation in type-2 immunity	LS6

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Why the heck would you apply???
(for a PoC if you have a StG or CoG or AdG)

Top-up money (so not true, need to design and steer separate project)

Commercialize an idea (so not true, just seed money)

Fund an idea to make it happen (the truth: to start making it happen)

Because it's a piece of cake compared to the big ERC grants (so not true, technical writing as compared with scientific writing, assessment criteria)

Because it requires less writing (so not true, 10 pages fro 150 K as compared with 20 pages for several M)

Because it has double or triple the success rate as the big ones (so not true, the denominator is ERC grantees)

The speaker got his StG at once, his PoC after 3 failures

Why the heck would you not apply???
(for a PoC)

Ha, ha, because I already got one (so not true, can apply for up to two projects as long as they do not overlap in time)

Cause by ERC ran out last year (so not true, can apply up to two years post-ERC)

Cause I do not like doing business, I am a basic scientist (the truth, it is a world-wide trend: science-application-money)

Because I already have enough money with my ERC grant (so not true, there is no better time to apply for additional grants than when you're ERC-funded)

Because I only like working alone (so true, best partner up with liaison before applying)

Because I do not understand the managerial jargon in the call (so true, you need a liaison to write it)

What happened…

2013-14: 3 REJECTS FOR A COMPLEX IDEA (1 WITH LIAISON)

DEC 2014: IDENTIFIED NEW LIAISON

FEB 2015: APPLIED FOR NEW PROJECT (IDIOT PROOF)

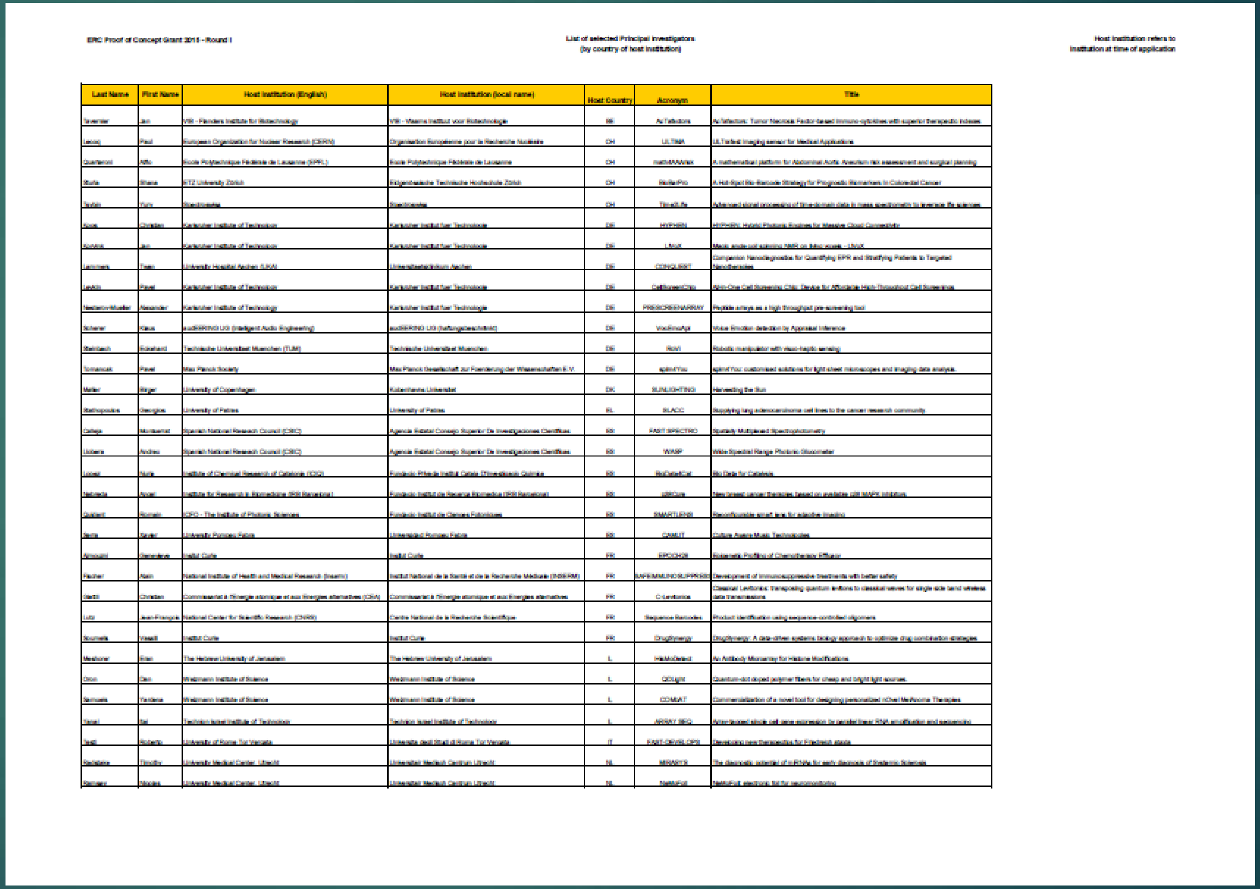
MAY 2015: GOT IT (150 K)

NOV 2015:PREFINANCING

NOV 2015:START

DEC 2015: NEGOTIATE WITH LIAISON

JAN 2016: FULL DEPLOYMENT



What is it about (idea 2p)

Syngeneic lung tumor models: LLC

Naturally induced lung tumors

Cell lines

Floxed cell lines

Tools for the CR community

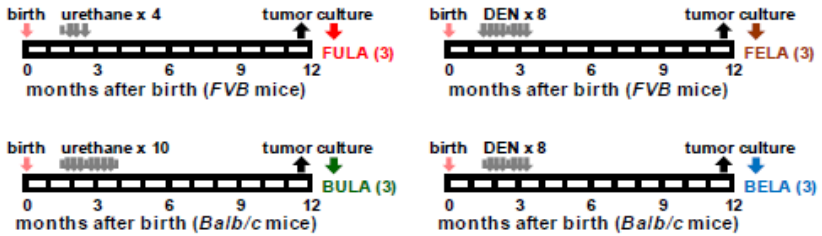


Figure 1 | Method of generation of mouse lung adenocarcinomas. Mice from the FVB and Balb/c backgrounds were injected weekly with tobacco carcinogens (grey arrows) urethane (1 g/Kg) or diethylnitrosamine (DEN; 200 mg/Kg) starting at six weeks after birth (pink arrows) and were observed for prolonged periods of time (each box represents one month). Lung tumors were dissected under sterile conditions, minced ,and cultured for 80-100 passages (one year) using DMEM supplemented with 10% FBS, 2 mM L-glutamine, 1 mM pyruvate, 100 U/ml penicillin, and 100 mg/ml streptomycin. Cell line designator acronyms stand for originating Strain (first letter; F for FVB and B for Balb/c); causative Carcinogen (second letter; U for urethane and E for DEN); Lung Adenocarcinoma; Serial number in order of establishment.

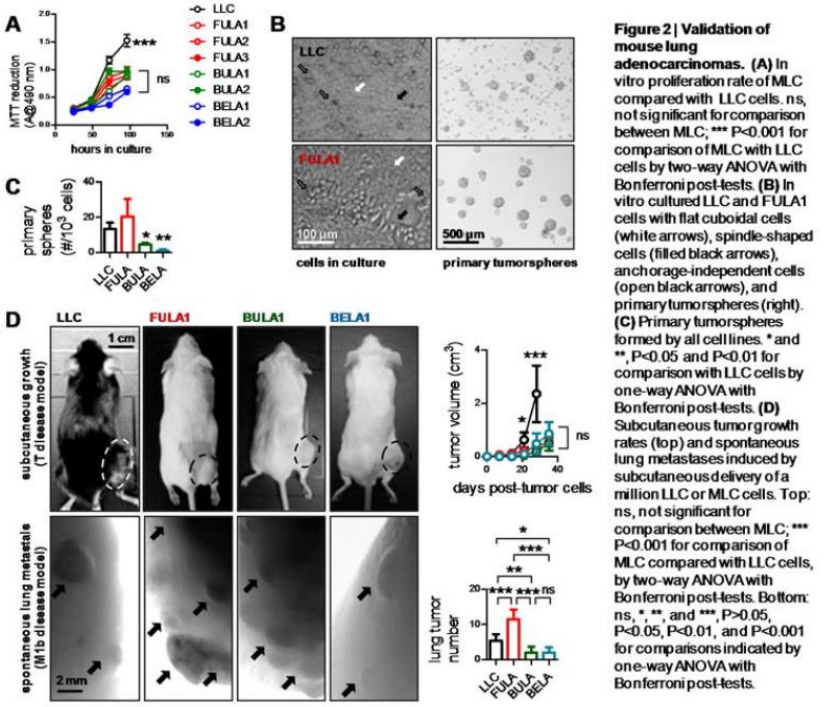


Figure 2 | Validation of mouse lung adenocarcinomas. (A) In vitro proliferation rate of MLC compared with LLC cells. ns, not significant for comparison between MLC; *** P<0.001 for comparison of MLC with LLC cells by two-way ANOVA with Bonferroni post-tests. **(B)** In vitro cultured LLC and FULA1 cells with flat cuboidal cells (white arrows), spindle-shaped cells (filled black arrows), anchorage-independent cells (open black arrows), and primary tumorspheres (right). **(C)** Primary tumorspheres formed by all cell lines. * and **, P<0.05 and P<0.01 for comparison with LLC cells by one-way ANOVA with Bonferroni post-tests. **(D)** Subcutaneous tumor growth rates (top) and spontaneous lung metastases induced by subcutaneous delivery of a million LLC or MLC cells. Top: ns, not significant for comparison between MLC; *** P<0.001 for comparison of MLC compared with LLC cells, by two-way ANOVA with Bonferroni post-tests. Bottom: ns, *, **, and ***, P>0.05, P<0.05, P<0.01, and P<0.001 for comparisons indicated by one-way ANOVA with Bonferroni post-tests.

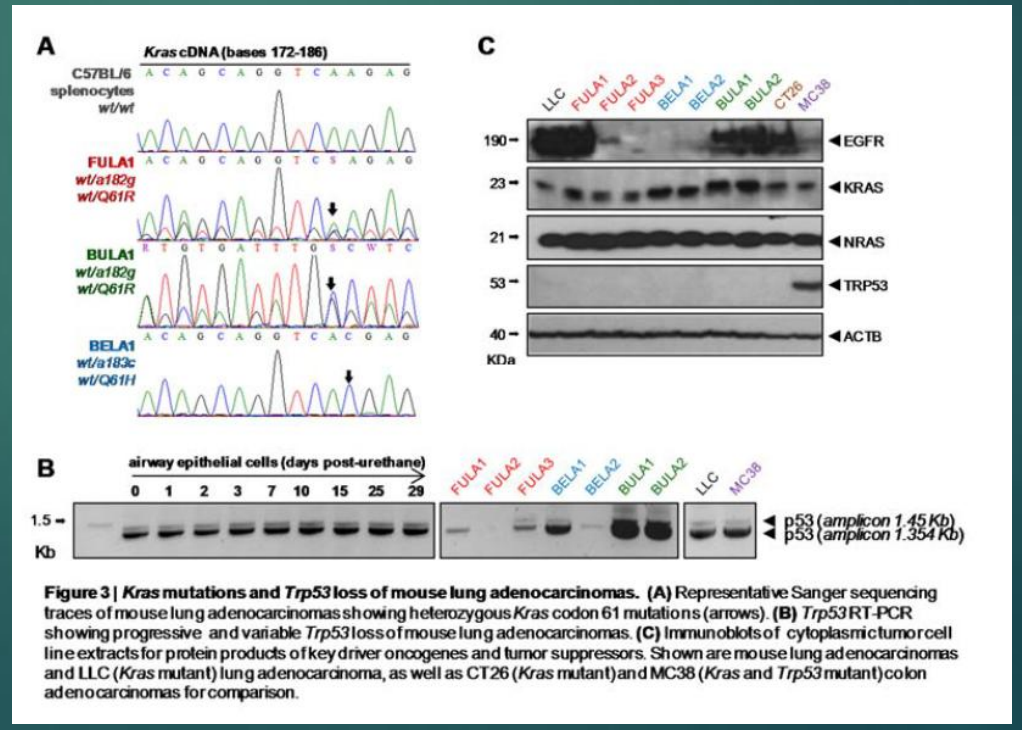


Figure 3 | *Kras* mutations and *Trp53* loss of mouse lung adenocarcinomas. (A) Representative Sanger sequencing traces of mouse lung adenocarcinomas showing heterozygous *Kras* codon 61 mutations (arrows). **(B)** *Trp53* RT-PCR showing progressive and variable *Trp53* loss of mouse lung adenocarcinomas. **(C)** Immunoblots of cytoplasmic tumor cell line extracts for protein products of key driver oncogenes and tumor suppressors. Shown are mouse lung adenocarcinomas and LLC (*Kras* mutant) lung adenocarcinoma, as well as CT26 (*Kras* mutant) and MC38 (*Kras* and *Trp53* mutant) colon adenocarcinomas for comparison.

Expected impact (2p)

Economic and/or societal benefits

Commercialisation process and/or any other exploitation process

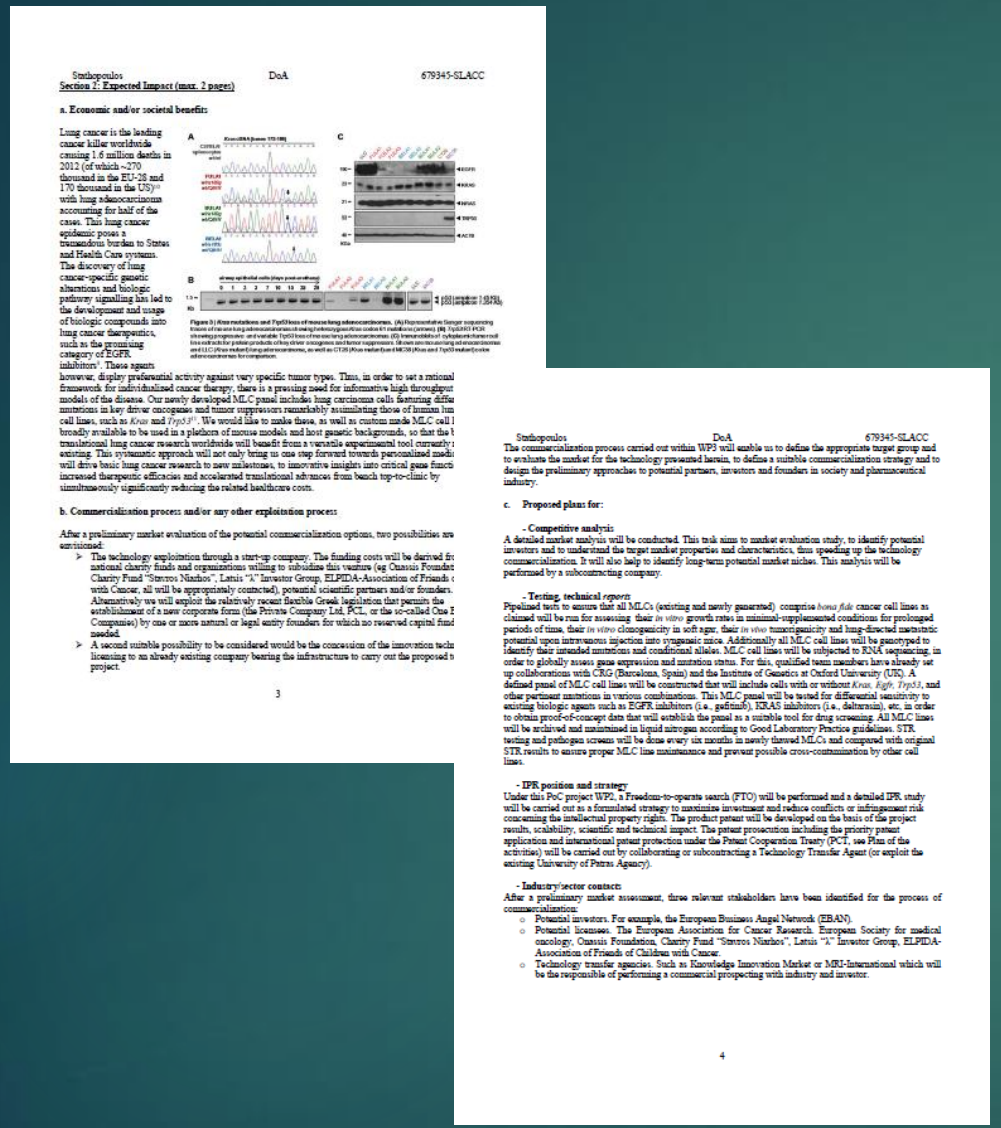
Proposed plans for:

-Competitive analysis

-- Testing, technical reports

-- IPR position and strategy

-- Industry/sector contacts



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Section 2: Expected Impact (max. 2 pages)

a. Economic and/or societal benefits

Lung cancer is the leading cancer killer worldwide causing 1.6 million deaths in 2012 (of which ~270 thousand in the EU-28 and 170 thousand in the US)[1] with lung adenocarcinoma accounting for half of the cases. This lung cancer epidemic poses a tremendous burden to States and Health Care systems. The discovery of lung cancer-specific genetic alterations and biologic pathway signalling has led to the development and usage of biologic compounds into lung cancer therapeutics, such as the promising category of EGFR inhibitors[2]. These agents however, display preferential activity against very specific tumor types. Thus, in order to set a rational framework for individualised cancer therapy, there is a pressing need for informative high throughput models of the disease. Our newly developed MLC panel includes lung carcinoma cells featuring diffe mutations in key driver oncogenes and tumor suppressors remarkably assimilating those of human lun cell lines, such as *Kras* and *Trp53*[3]. We would like to make these, as well as custom made MLC cell l broadly available to be used in a plethora of mouse models and host genetic backgrounds, so that the b translational lung cancer research worldwide will benefit from a versatile experimental tool currently existing. This systematic approach will not only bring us one step forward towards personalized medi will drive basic lung cancer research to new milestones, to innovative insights into critical gene functi increased therapeutic efficacies and accelerated translational advances from bench top-to-clinic by simultaneously significantly reducing the related healthcare costs.

b. Commercialisation process and/or any other exploitation process

After a preliminary market evaluation of the potential commercialization options, two possibilities are envisioned:

- The technology exploitation through a start-up company. The funding costs will be derived fr national charity funds and organizations willing to subsidize this venture (eg Onassis Foundat Charity Fund "Stavros Niarhos", Latsis "A" Investor Group, ELPIDA-Association of Friends with Cancer, all will be appropriately contacted), potential scientific partners and/or founders. Alternatively we will exploit the relatively recent Hellenic Greek legislation that permits the establishment of a new corporate form (the Private Company Ltd, PCL, or the so-called One P Companies) by one or more natural or legal entity founders for which no reserved capital fund needed.
- A second suitable possibility to be considered would be the concession of the innovation techn licensing to an already existing company bearing the infrastructure to carry out the proposed t project.

3

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The commercialization process carried out within WP3 will enable us to define the appropriate target group and to evaluate the market for the technology presented herein, to define a suitable commercialization strategy and to design the preliminary approaches to potential partners, investors and founders in society and pharmaceutical industry.

c. Proposed plans for:

- Competitive analysis

A detailed market analysis will be conducted. This task aims to market evaluation study, to identify potential investors and to understand the target market properties and characteristics, thus speeding up the technology commercialization. It will also help to identify long-term potential market niches. This analysis will be performed by a subcontracting company.

- Testing, technical *reports*

Pipelined tests to ensure that all MLCs (existing and newly generated) comprise *bona fide* cancer cell lines as claimed will be run for assessing their *in vitro* growth rates in minimal-supplemented conditions for prolonged periods of time, their *in vitro* clonogenicity in soft agar, their *in vivo* tumorigenicity and lung-fractal metastatic potential upon intravenous injection into syngeneic mice. Additionally all MLC cell lines will be genotyped to identify their intended mutations and conditional alleles. MLC cell lines will be subjected to RNA sequencing, in order to globally assess gene expression and mutation status. For this, qualified team members have already set up collaborations with CRG (Barcelona, Spain) and the Institute of Genetics at Oxford University (UK). A defined panel of MLC cell lines will be constructed that will include cells with or without *Kras*, *Egfr*, *Trp53*, and other pertinent mutations in various combinations. This MLC panel will be tested for differential sensitivity to existing biologic agents such as EGFR inhibitors (i.e., gefitinib), KRAS inhibitors (i.e., deltarasin), etc, in order to obtain proof-of-concept data that will establish the panel as a suitable tool for drug screening. All MLC lines will be archived and maintained in liquid nitrogen according to Good Laboratory Practice guidelines. STR testing and pathogen screen will be done every six months in newly thawed MLCs and compared with original STR results to ensure proper MLC line maintenance and prevent possible cross-contamination by other cell lines.

- IPR position and strategy

Under this PoC project WP2, a Freedom-to-operate search (FTO) will be performed and a detailed IPR study will be carried out as a formulated strategy to maximize investment and reduce conflicts or infringement risk concerning the intellectual property rights. The product patent will be developed on the basis of the project results, scalability, scientific and technical impact. The patent prosecution including the priority patent application and international patent protection under the Patent Cooperation Treaty (PCT, see Plan of the activities) will be carried out by collaborating or subcontracting a Technology Transfer Agent (or exploit the existing University of Patras Agency).

- Industry/sector contact:

After a preliminary market assessment, three relevant stakeholders have been identified for the process of commercialization:

- Potential investors. For example, the European Business Angel Network (EBAN).
- Potential licensees. The European Association for Cancer Research. European Society for medical oncology, Onassis Foundation, Charity Fund "Stavros Niarhos", Latsis "A" Investor Group, ELPIDA-Association of Friends of Children with Cancer.
- Technology transfer agencies. Such as Knowledge Innovation Market or MRI-International which will be the responsible of performing a commercial prospecting with industry and investor.

4

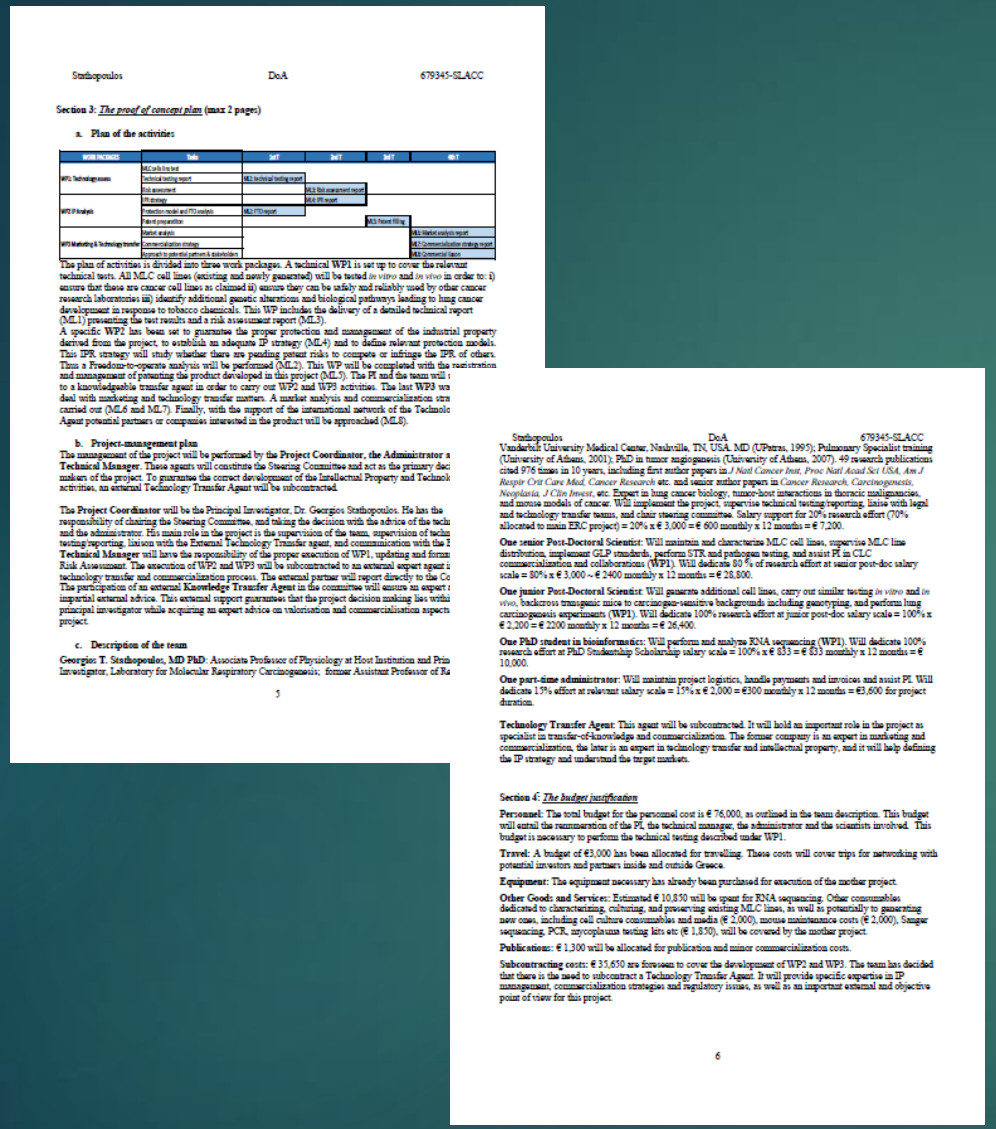
The PoC plan (2p)

Plan of the activities

Project-management plan

Description of the team

The budget justification



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Section 3: ***The proof of concept plan*** **(max 2 pages)**

a. Plan of the activities

WORK PACKAGES	Tasks	3mT	6mT	9mT	12mT
WP1: Technology assess	MLC cells limited				
	Technical testing report	ML1: technical testing report			
	Risk assessment		ML2: Risk assessment report		
	IPR strategy		ML4: IPR report		
WP2: IP Analysis	Collection, results and FTO analysis	ML3: FTO report			
	Patent preparation			ML5: Patent filing	
	Market analysis				ML6: Market analysis report
WP3: Marketing & Technology transfer	Commercialization strategy				ML7: Commercialization strategy report
	Approach to potential partners & stakeholders				ML8: Commercial liaison

The plan of activities is divided into three work packages. A technical **WP1** is set up to cover the relevant technical tests. All MLC cell lines (existing and newly generated) will be tested *in vitro* and *in vivo* in order to: i) ensure that these are cancer cell lines as claimed ii) ensure they can be safely and reliably used by other cancer research laboratories iii) identify additional genetic alterations and biological pathways leading to lung cancer development in response to tobacco chemicals. This WP includes the delivery of a detailed technical report (ML1) presenting the test results and a risk assessment report (ML3).
A specific **WP2** has been set to guarantee the proper protection and management of the industrial property derived from the project, to establish an adequate IP strategy (ML4) and to define relevant protection models. This IPR strategy will study whether there are pending patent risks to compete or infringes the IPR of others. Then a Freedom-to-operate analysis will be performed (ML2). This WP will be completed with the registration and management of patenting the product developed in this project (ML5). The PI and the team will
to a knowledgeable transfer agent in order to carry out WP2 and WP3 activities. The last **WP3** wa
deal with marketing and technology transfer matters. A market analysis and commercialization stra
carried out (ML6 and ML7). Finally, with the support of the international network of the Technolo
Agent potential partners or companies interested in the product will be approached (ML8).

b. Project-management plan

The management of the project will be performed by the **Project Coordinator, the Administrator a**
Technical Manager. These agents will constitute the Steering Committee and act as the primary dec
makers of the project. To guarantee the correct development of the Intellectual Property and Technol
activities, an external Technology Transfer Agent will be subcontracted.

The Project Coordinator will be the Principal Investigator, Dr. Georgios Stathopoulos. He has the
responsibility of chairing the Steering Committee, and taking the decision with the advice of the techn
and the administrator. His main role in the project is the supervision of the team, supervision of techn
testing/reporting, liaison with the External Technology Transfer agent, and communication with the E
Technical Manager will have the responsibility of the proper execution of WP1, updating and formu
Risk Assessment. The execution of WP2 and WP3 will be subcontracted to an external expert agent i
technology transfer and commercialization process. The external partner will report directly to the Co
The participation of an external **Knowledge Transfer Agent** in the committee will ensure an expert
impartial external advice. This external support guarantees that the project decision making lies withi
principal investigator while acquiring an expert advice on valorisation and commercialization aspects
project.

c. Description of the team

Georgios T. Stathopoulos, MD PhD: Associate Professor of Physiology at Host Institution and Prin
Investigator, Laboratory for Molecular Respiratory Carcinogenesis; former Assistnat Professor of Re

5

Stathopoulos DoA 679345-SLACC

Vanderbilt University Medical Center, Nashville, TN, USA. MD (UPatras, 1995); Pulmonary Specialist training (University of Athens, 2001); PhD in tumor angiogenesis (University of Athens, 2007). 49 research publications cited 976 times in 10 years, including first author papers in *J Natl Cancer Inst, Proc Natl Acad Sci USA, Am J Respir Crit Care Med, Cancer Research* etc. and senior author papers in *Cancer Research, Carcinogenesis, Neoplasia, J Clin Invest*, etc. Expert in lung cancer biology, tumor-host interactions in thoracic malignancies, and mouse models of cancer. Will implement the project, supervise technical testing/reporting, liaise with legal and technology transfer teams, and chair steering committee. Salary support for 20% research effort (70% allocated to main ERC project) = 20% x € 3,000 = € 600 monthly x 12 months = € 7,200.

One senior Post-Doctoral Scientist: Will maintain and characterise MLC cell lines, supervise MLC line distribution, implement GLP standards, perform STR and pathogen testing, and assist PI in CLC commercialization and collaborations (**WP1**). Will dedicate 80 % of research effort at senior post-doc salary scale = 80% x € 3,000 ~ € 2400 monthly x 12 months = € 28,800.

One junior Post-Doctoral Scientist: Will generate additional cell lines, carry out similar testing *in vitro* and *in vivo*, backcross transgenic mice to carcinogen-sensitive backgrounds including genotyping, and perform lung carcinogenesis experiments (**WP1**). Will dedicate 100% research effort at junior post-doc salary scale = 100% x € 2,200 = € 2200 monthly x 12 months = € 26,400.

One PhD student in bioinformatics: Will perform and analyze RNA sequencing (**WP1**). Will dedicate 100% research effort at PhD Studentship Scholarship salary scale = 100% x € 833 = € 833 monthly x 12 months = € 10,000.

One part-time administrator: Will maintain project logistics, handle payments and invoices and assist PI. Will dedicate 15% effort at relevant salary scale = 15% x € 2,000 = €300 monthly x 12 months = €3,600 for project duration.

Technology Transfer Agent: This agent will be subcontracted. It will hold an important role in the project as specialist in transfer-of-knowledge and commercialization. The former company is an expert in marketing and commercialization, the later is an expert in technology transfer and intellectual property, and it will help defining the IP strategy and understand the target markets.

Section 4: ***The budget justification***

Personnel: The total budget for the personnel cost is € 76,000, as outlined in the team description. This budget will entail the remuneration of the PI, the technical manager, the administrator and the scientists involved. This budget is necessary to perform the technical testing described under WP1.

Travel: A budget of €3,000 has been allocated for travelling. These costs will cover trips for networking with potential investors and partners inside and outside Greece.

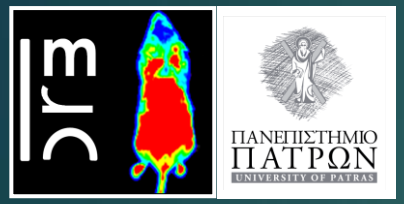
Equipment: The equipment necessary has already been purchased for execution of the mother project.

Other Goods and Services: Estimated € 10,850 will be spent for RNA sequencing. Other consumables dedicated to characterising, culturing, and preserving existing MLC lines, as well as potentially to generating new ones, including cell culture consumables and media (€ 2,000), mouse maintenance costs (€ 2,000), Sanger sequencing, PCR, mycoplasma testing kits etc (€ 1,850), will be covered by the mother project.

Publications: € 1,300 will be allocated for publication and minor commercialization costs.

Subcontracting costs: € 35,650 are foreseen to cover the development of WP2 and WP3. The team has decided that there is the need to subcontract a Technology Transfer Agent. It will provide specific expertise in IP management, commercialization strategies and regulatory issues, as well as an important external and objective point of view for this project.

6



A Marazioti
M Spella
T Agalioti
I Lilis
I Giopanou
NI Kanellakis
N Spyropoulou
M Papageorgopoulou
G Ntalliarda
G Giotopoulou
A Krontira
V Armenis
D Kati

M Vreka
LV Klotz
K Arendt