# Dr ALEXANDER PINTZAS

Institute Director/ Researcher A'
Institute of Biology, Medicinal Chemistry and Biotechnology

Phone: 30-210-7273753
Fax: 30-210-7273677
E-mail: apint@eie.gr
Website: http://www.eie.gr/nhrf/institutes/ibrb/programmes/smgenexp-en.html

## Short CV in text –Current Research interests

My research interests have been in the scientific areas of Biology of Cancer and Cell Death, Cancer Chemoprevention and Therapeutics, including biotechnological approaches. They are closely related to the scientific disciplines of the Institute of Biology, Medicinal Chemistry and Biotechnology.

*Current studies in NHRF*

The Laboratory activities are focusing on the interplay between oncogenic and apoptotic signals and its exploitation towards uncovering sensitisation pathways to targeted cancer therapeutics. The analysis of genetic and epigenetic events as well as global gene expression in physiological as compared to neoplastic cells. is the other focus of the lab.

*a) Sensitisation to cancer therapeutic molecules and their rational combinations*

The interplay between oncogenic RAS with apoptotic signals induced by the cytokine TRAIL, a novel potent cancer therapeutic agent has been analysed. TRAIL induced apoptosis in mouse xenographs of primary colon tumour cells partially due to upregulation of DR5 (Oikonomou et al. Br. J. Cancer, 2007). Oncogenic forms of RAS sensitise human colon cells to TRAIL induced apoptosis by upregulating TRAIL receptors DR4 and DR5 through a MEK-dependent pathway (Drosopoulos et al. J. Biol. Chem. 2005, reviewed in: Oikonomou and Pintzas, Biofactors, 2013). Existence of KRAS and BRAF mutations in colorectal tumours is associated with DR overexpression, which indicates that these patients may potentially respond to TRAIL treatment (Oikonomou et al., Int J Cancer, 2009). Rational combination studies of TRAIL with small molecule inhibitors of activated kinase pathways have been performed.

Interestingly, BRAF and PI3K inhibitors can synergise with TRAIL to sensitise tumour cells to apoptosis (Oikonomou et al., PLoS ONE, 2011). In addition, polyphenol quercetin has been shown to synergise with TRAIL on causing apoptotic death by inducing accumulation of TRAIL receptors in lipid rafts (Psahoulia et al., Mol. Cancer. Ther, 2007). The findings of an EU-funded consortium on the effect of kinase inhibitors on tumours and their combinatorial effect with TRAIL have been described (Pintzas et al., Cancer Biology and Therapy, 2012)

One other goal was the development of exploitable in vitro chemoprevention cell systems, based on the home made inducible oncogene expression systems In the same study, we have shown that the polyphenol quercetin induced autophagy in Ha-Ras transformed cells (Psahoulia et al. Carcinogenesis, 2007).

Currently, novel specific potential PI3K inhibitors are being screened in a drug discovery project in the frame of the POM programme. Also, new efficient anti-cancer rational combinations of TRAIL with apoptosis inhibitors are being developed in the frame of THERA-CAN programme. In parallel, other novel anti-tumour kinase inhibitors will be developed shortly in the frame of STHENOS project.

*b) Oncogenic pathway analysis in human colorectal carcinogenesis*

Analysis of gene expression profile during tumour progression in colon cancer cell lines has been performed (Roberts et al. Int. J. Cancer, 2006). Candidate genes to be involved in colon tumour progression have been identified by microarray analysis and their role is currently being validated. BRAFV600E target gene analysis (Joyce et al. Current Cancer Drug Targets, 2012) has being performed using the Illumina microarray platform. On the other hand, the comparative effect of KRASV12 vs BRAFV600E has being analysed (Oikonomou, Makrodouli, et al., Neoplasia, 2009; Makrodouli et al., Mol. Cancer, 2012). Currently, the differential effects of PIK3CA mutant oncoproteins are being analysed, in the frame of POM project.

*c) Genetic-epigenetic mechanisms of Epithelial-Mesenchymal Transition (EMT) in cancer*

We have established a cell model of highly metastatic Epithelial to Mesenchymal Transition (EMT) phenotype in colon adenoma cells by Ha-RASV12 oncogene. Whole genome analysis has been performed and a signature of EMT has been revealed (Joyce et al., Clin. Exp. Metastasis, 2009). The role of EMT in resistance of cancer cells to therapies has been also reviewed (Voulgari et al., BBA Reviews on Cancer, 2009). Regulation of EMT associated genes by AP-1 and TFIID transcription factors has been shown (Andreolas et al., Int. J. Cancer, 2008, Kalogeropoulou et al., Mol. Cancer Res., 2010). On the other hand, selected histone modifications and modifiers associated with EMT have been identified (Mazon-Pelaez et al., Int J Biochem Cell Biol., 2010) and an important role of EZH2 histone methyltransferase in regulating EMT and anoikis has

been revealed (Ferraro et al., Int J Biochem Cell Biol., 2013). A genome-wide ChIP-sequencing approach is currently in process for identification of global and novel EZH2 targets associated with tumour cell properties and EMT.

**Education and qualifications**

1992–1995: Senior Fellow, Institute of Biological Chemistry, LGME-CNRS, (currently IGBMC), School of Medicine, University of Strasbourg, France.
1989-1992: Post-doctoral Research Fellow, CRC (currently CRUK) Beatson Institute for Cancer Research, Glasgow, U.K.
1985-1989: PhD in Biochemistry- Molecular Biology, Dept. of Biology, University of Athens
1976-1981: BSc in Chemistry, Dept. of Chemistry, University of Athens

**Appointments**

2012- : Director, Institute of Biology, Medicinal Chemistry and Biotechnology (IBMCB), National Hellenic Research Foundation, Athens
2011- 2012: Director, Institute of Biological Research and Biotechnology (IBRB), National Hellenic Research Foundation, Athens
2002- : Research Professor, Head of Signal Mediated Gene Expression Laboratory, Institute of Biological Research and Biotechnology, National Hellenic Research Foundation, Athens
1996- 2002: Research Associate Professor, Lab Head, Institute of Biological Research and Biotechnology, National Hellenic Research Foundation, Athens
1993-1996: Res. Assistant Prof., Inst. Biol. Res. Biotech., Nat. Hell. Res. Found.
1992–1995: Senior Fellow, Institute of Biological Chemistry, LGME-CNRS, (currently IGBMC), School of Medicine, University of Strasbourg, France.
1989-1992: Post-doctoral Research Fellow, CRC (currently CRUK) Beatson Institute for Cancer Research, Glasgow, U.K.
1985-1989: Functional Scientist, Dept. of Virology, Hellenic Pasteur Institute, Athens, Greece.

**HONORS/AWARDS/DISTINCTIONS**

1990-1991: Long-term EMBO (European Molecular Biology Organisation) Post-doctoral fellowship
1992-1993: Post-doctoral fellowship by the French Organisation against Cancer (ARC)
1993-1994: EU Marie Curie Post-doctoral fellowship (HCM)
1996: Fellowship from the Royal Society of U.K.

*TEACHING AND TRAINING EXPERIENCE*

2003-2007: Visiting Professor on "Molecular Oncogenesis" at the Department of Molecular Biology and Genetics, Dimokriteio University, Greece

2004-2013: Teaching by Special Seminars on Biochemistry, Molecular Biology and Oncology in the frame of several post-graduate (Master) courses of Schools of Medicine, Biology, Athens University and of Oncology-Pathology Societies

1996-2013: Supervision of 16 (12 EU supported) post-doctoral fellows. Supervision of 8 PhD students and 8 diploma students already successfully supported their theses.

1992-1995: Supervision of diploma students of Biotechnology School, Strasbourg University (ESBS-ULP), in the field of Molecular Biology of Cancer Cell

*MEMBER OF SOCIETIES*

-EMBO (European Molecular Biology Organisation) Fellows Network
- EACR (European Association for Cancer Research)
- EORTC (European Organisation for Research and Treatment of Cancer - PAMM group)
- Marie Curie Fellowship Association
- Greek Society of Biochemistry and Molecular Biology (EEBMB)
- Association of Greek Chemists (EEX)

*RESEARCH FUNDING*

Funding for the Institute:

1. 2013-2015:"STHENOS", Targeted therapeutic approaches against degenerative diseases, with special focus on cancer and ageing. National Strategic Reference Framework, Action "Developmental Projects of Research Organisations- Kripis". Funding for the Institute: 1500 kEuros (co-ordinator)

TOTAL budget for the lab from competitive grants: > 3,400 kEuros (1996-2013)

Selected grants:

1. 2013-2015:"STHENOS", Targeted therapeutic approaches against degenerative diseases, with special focus on cancer and ageing. National Strategic Reference Framework, Action "Developmental Projects of Research Organisations- Kripis". Funding for the Institute: 1500 kEuros Funding for the lab: 30 kEuros (co-ordinator).
2. 2012-2015: "THERACAN", Exploiting molecular pathways of apoptotic cell death for the rational design of therapeutic strategies for colon cancer. National Strategic Reference Framework, Action "Co-operation II". Funding for the lab: 200 kEuros

3. 2010-2014: "POM", PIK3CA Oncogenic Mutations in Breast and Colon Cancers: Development of Targeted Anticancer Drugs and Diagnostics. National Strategic Reference Framework, Action "Co-operation". Funding for the lab: 130 kEuros
4. 2009-2012 : "EpiDiaCan", Development of sensitive methodologies for exploitation of early epigenetic marker diagnosis in major types of cancer. 7FP EU- Cooperation" – Theme "Health". Total funding 2.843 kEuros, for the lab 504 kEuros (co-ordinator)
5. 2012-2014: "CancerStem-Less", Establishment and characterization of cancer stem cells from colorectal tumours, towards their sensitisation to modern therapeutic pharmacological strategies. National Strategic Reference Framework, Action "Supporting Postdoctoral Researchers" Funding : 150 kEuros
6. 2006-2010 : "Oncodeath" Resistant determinants and sensitisation of solid tumor cells to death receptor related therapies: combination of TRAIL with other therapeutic molecules. EU-Combating Cancer Programme. Total funding 2.345 kEuros , for the lab: 589 kEuros (co-ordinator)
7. 2006-2009: Functional oncogenomics: a powerful tool towards diagnosis and treatment of human colorectal cancer. Greek Research Network PENED. Funding 235 kEuros (co-ordinator)
8. 2004-2008: "Macromolecular assemblies involved in regulated gene expression: structural/functional characteristics, interplay and novel functions", EU Transfer of Knowledge (TOK) Research Programme, funding for the lab: 250 kEuros
9. 2004-2008: "TAF-Chromatin" EU Research Training Network (RTN) Programme. Participation of 7 labs from 6 countries. Funding for the lab: 370 kEuros.
10. 2004-2007: "Transcription complex dynamics controlling specific gene expression programs" EU- Fundamental Genomics Programme. funding for the lab: 450 kEuros
11. 2004-2006: "Molecular mechanisms of tumour invasion and metastasis", Research cooperation programme between Greece and USA. Funding for the lab: 60 kEuros
12. 2003-2006: "In vivo and in silico analysis of gene expression induced by Ras oncogene in cancer", Greek Research Network PENED. Funding 140 kEuros (co-ordinator)
13. 2002-2005: "Regulation of transcription and mRNA processing by oncogenic signals", EU-IHP Research Programme. Funding: 228 kEuros (co-ordinator)
14. 1996-2001: "The AP-1 transcription factor", EU-TMR Research Network. Participation of 7 labs from 6 EU countries. Funding for the lab: 220 kEuros.
15.1996-2000: "Cell signalling in development and disease", EU-TMR Research Network. Participation of 9 labs from 7 EU countries. Funding for the lab: 55 kEuros

*EXPERIENCE ON MANAGEMENT*

2012- : Director, Institute of Biology, Medicinal Chemistry and Biotechnology (IBMCB), National Hellenic Research Foundation, Athens

2011- 2012: Director, Institute of Biological Research and Biotechnology, National Hellenic Research Foundation, Athens
1996- : Head of Signal Mediated Gene Expression Laboratory, Institute of Biological Research and Biotechnology, National Hellenic Research Foundation, Athens

*AS INSTITUTE DIRECTOR: SELECTED INITIATIVES- EVENTS*

- Active participation as IBRB Director towards merging with IOPC to form the current Institute IBMCB (Institute of Biology, Medicinal Chemistry and Biotechnology) (2011-2012)
- Co-ordinated the IBMCB initiative on targeted therapeutics, which was accepted for funding with 1,5 million Euros: "STHENOS", Targeted therapeutic approaches against degenerative diseases, with special focus on cancer and ageing. National Strategic Reference Framework, Action, "Developmental Projects of Research Organisations- Kripis". Funding for the Institute: 1500 kEuros (co-ordinator) (2012)
- Active role, as the first IBMCB Director, for a functional start of the new Institute in NHRF (2012), by:
  a. Organisation of two-day workshop for Researchers of IBMCB (May 2012)
  b. Co-ordination of the initial procedures towards a new structure of IBMCB, for exploitation of the existing multidisciplinary expertise of IBMCB Researchers on biology and chemistry in the areas of drug discovery, health and biotechnology-green chemistry
- Active support for IBMCB participation and membership in National and EU Infrastructures on Translational Research (EATRIS-GR), Biobanking (BBMRI-GR) and Structural biology (INSTRUCT). Supported IBMCB membership in the HELLENIC STEM CELL NETWORK Initiative
- Represented the Institute in meetings concerning research policy

*SCIENTIFIC AND FINANCIAL MANAGEMENT OF RESEARCH PROJECTS:*

Scientific and financial management for 3 large European and 3 Greek research funded programmes of total 30 collaborating organizations and of total budget 5,8 million Eur

*INTERNATIONAL COLLABORATIONS*

- Cooperation with Czech Academy of Sciences, Prague, Czech Republic on mechanisms of anticancer properties of TRAIL and rational combinations with targeted drugs
- Cooperative studies with IGBMC, Strasbourg, France on the role of components of basal transcriptional machinery in tumour progression
- Cooperation with Medical School, Turin University and Illumina Inc. on microarray analysis of oncogenic pathways

- Collaboration with UCSF Cancer Center, San Francisco, USA on mechanisms of multistage carcinogenesis

*CONFERENCES CHAIRED/ORGANISED*

2008: 33rd FEBS-IUBMB Congress "Biochemistry of Cell Regulation", Athens, Greece
2008: FEBS Workshop "Lipids as regulators of cell function" Island of Spetses, Greece
2005: FEBS Advanced Study Institute on "Chemical Probes in Biology", Island of Spetses, Greece
2003: EMBO/FEBS advanced lecture course "Molecular Mechanisms in Signal Transduction", Island of Spetses, Greece
2003: 54th Conference of the Greek Society of Biochemistry and Molecular Biology, Athens, Greece
2002: NATO/FEBS Advanced Study Institute on "Chemical Probes in Biology", Island of Spetses, Greece
2001: FEBS/EMBO Advanced lecture Course on "Molecular Mechanisms in Signal Transduction", Island of Spetses, Greece
2001: 52nd Conference of the Greek Society of Biochemistry and Molecular Biology, Athens, Greece
2000: EU-FORTH-MCFA Conference on "Investing in Europe's Human Research Potential", Iraklio, Crete, Greece
1999: NATO/FEBS Advanced Study Institute on "Molecular Mechanisms of Signal Transduction", Island of Spetses, Greece
1999: 50th Conference of the Greek Society of Biochemistry and Molecular Biology, Athens, Greece
1988: NATO Advanced Research Workshop "Ras oncogenes",Vouliagmeni, Greece
1987: 35th Conference of European Tissue Culture Society, Athens, Greece

*INVITED SPEAKER (SELECTED INVITATIONS)*

EMBO Cancer Genomics Conference, Heidelberg, Germany
EORTC Meeting, Brussels, Belgium
EU EPITRON Meeting, Athens, Greece
European Cell Death Organisation Meeting, Ghent, Belgium
Institute for Cancer Research, London, U.K.
Cancer Research UK Beatson Institute for Cancer Research, Glasgow, U.K.
Institute of Molecular Biology and Biochemistry, FORTH, Heraklion, Greece
Karolinska Institute, Department of Biosciences and Nutrition, Stockholm, Sweden
UCSF - Cancer Research Institute, San Francisco, USA
IGBMC, Strasbourg, France
Biomedical Research Foundation, Athens Academy of Sciences, Greece

Demokritus Research Center, Athens, Greece
"Cell communication & Signalling", Workshop of the Hellenic Society of Biochemistry and Molecular Biology, Thessaloniki, Greece
FEBS Workshop, "Lipids as regulators of cell function", Island of Spetses, Greece
45th Congress of the European Society of Toxicology, Rhodes, Greece
IRCC, Medical School, University of Torino, Italy
7th INTERNATIONAL CONFERENCE OF ANTICANCER RESEARCH, Corfu, Greece
3rd Conference on Experimental and Translational Oncology, Kranjska gora, Slovenia
European Association for Cancer Research Conference, Granada, Spain
The Cyprus Institute of Neurology & Genetics, Nicosia, Cyprus

*Service/Consulting*
Member of Advisory Board of EU Network on Cancer Genomics
Former Member of the National Assembly of Research and Technology (2003-2004)
National Expert of 7 FP ERC IDEAS Programme (2006-2009)

*DUTIES AS REVIEWER/REFEREE*
- For funding research organizations (selected): European Union (7th and 6th FP); Cancer Research UK (CRUK); Association for International Cancer Research (AICR); International Association for Cancer Research (UICC); National Research Funding Agencies of (selected) :The Netherlands, Switzerland, Singapore, Austria, Republic of Ireland, Czech Republic, Cyprus and funding research organizations of Greece (GSRT and other)
- For Scientific Journals (selected): Cell Death and Differentiation; Cancer Research; Gastroenterology; American Journal Pathology; Molecular and Cellular Biology, British Journal of Cancer; Carcinogenesis; Clinical Cancer Research; Apoptosis; Genome Research; International Journal Cancer; Molecular Cancer Therapeutics

*SIGNAL MEDIATED GENE EXPRESSION LAB MEMBERS (December 2013)*
Angelo Ferraro, PhD, Senior Post-doctoral Fellow, Cancer Biology
Philippos Perimenis, PhD, Post-doctoral Fellow, Cell Biology
Vivian Kosmidou, MSc, Research Assistant
Margarita Vlassi, MSc, Cancer Biology
Evangelos Koustas, BSc, Biology
Maria Goulielmaki, BSc, Biology
1 more Fellow to be recruited in the frame of THERA-CAN project

*Distinctions-Prizes*

Many invitations for seminars in Scientific Meetings and in University Departments-Research Institutes. Distinctions for Lab members in submitted presentations in scientific conferences.

Review of Prof. J. Taipale, Karolinska Institute, member of the external advisory group NHRF/IBRB, October 2009:

"Signal-mediated Gene Expression Programme, A. Pintzas: The signal-mediated gene-expression programme is one of the leading laboratories of the institute, and is currently highly active, and the laboratory's recent publication record is best of all the groups. I recommend additional funding for this group".

**PUBLICATIONS**

50. Ferraro, A., Kontos, C., Boni, T., Bantounas, I., Siakouli, D., Kosmidou, V., Vlassi, M., Spyridakis, Y., Tsipras, I., Zografos, G., and **Pintzas, A.** (2013). Epigenetic regulation of miR-21 in colorectal cancer: ITGB4 as a novel miR-21 target and a three-gene network (miR-21-ITGB4-PCDC4) as predictor of metastatic tumor potential. *Epigenetics.* In press.http://dx.doi.org/10.4161/epi.26842.

49. Ferraro, A., Mourtzoukou, D., Kosmidou, V., Avlonitis, S., Kontogeorgos, G., Zografos, G., and **Pintzas, A.** (2013). EZH2 is regulated by ERK/AKT and targets Integrin α2 gene to control Epithelial-Mesenchymal Transition and anoikis in colon cancer cells. *Int J Biochem Cell Biol,* 45, 243-254.

48. Oikonomou E. and **Pintzas, A.** (2013). The TRAIL of Oncogenes to Apoptosis. *BioFactors* 39, 343-354.

47. Kosmidou, V., Oikonomou, E., Vlassi, M., Avlonitis, S., Katseli, A., Tsipras, I., Moutzoukou, D., Kontogeorgos, G., Zografos, G. and **Pintzas, A.** (2013). Intratumor heterogeneity revealed by KRAS, BRAF and PIK3CA pyrosequencing: KRAS double mutations and mutation profile differences between tumor center and periphery. *Human Mutation*. In press.

46. Joyce, T., Oikonomou, E., Kosmidou, V., Makrodouli, E., Bantounas, I., Avlonitis, S., Zografos, G., and **Pintzas A.** (2012). A molecular signature for oncogenic BRAF in human colon cancer cells is revealed by microarray analysis. *Current Cancer Drug Targets* 12, 873-898.

45. **Pintzas, A.**, Zhivotovsky, B., Workman, P., Clarke, P.A., Linardopoulos, S., Martinou, J-C., Lacal, JC, Robine, S., Nasioulas, G. and Andera, L. (2012). Sensitisation of (colon) cancer cells to death receptor related therapies: a report from the FP6-ONCODEATH research consortium. *Cancer Biology and Therapy* 13, 507 – 515.

44. Oikonomou E., Koc M., Sourkova, V., Andera, L., and **Pintzas A.** (2011). Selective BRAFV600 inhibitor PLX4720, requires TRAIL assistance to overcome oncogenic PIK3CA resistance. *PLoS ONE*. 6, e21632.

43. Makrodouli, E., Oikonomou, E., Koc, M., Andera, L., Sasazuki, T., Shirasawa, S., and **Pintzas, A.** (2011). BRAF and RAS oncogenes regulate Rho GTPase pathways to induce migration and invasion properties in human colon cancer cells: a comparative study. *Mol. Cancer* 10, 118. (Highly accessed article in BioMed Central).

42. Kalogeropoulou M., Voulgari A., Kostourou, V., Sandaltzopoulos, R., Dikstein, R., Davidson, I., Tora, L. and **Pintzas, A.** (2010). TAF4b and Jun/AP-1 collaborate to regulate expression of Integrin α6 and cancer cell migration properties. *Mol. Cancer Res.* 8, 554-568.

41. Kerr, N., **Pintzas, A.**, Holmes, F., Hobson, S.-A., Pope, R., Wallace, M., Wasylyk, C., Wasylyk, B. and D. Wynick (2010). Complexity in the expression of ELK transcription factors: Novel isoforms, antisense transcripts and upregulation by nerve damage. *Mol. Cell Neurosci.* 44. 165–177.

40. Mazón Peláez, I., Kalogeropoulou, M., Ferraro, A., Voulgari, A., Pankotai, T., Boros, I., and **Pintzas, A.** (2010). Oncogenic RAS alters the global and gene specific Histone modification pattern during Epithelial-Mesenchymal Transition in colorectal carcinoma cells. *Int. J. Biochem. Cell Biol.* 42, 911–920.

39. Moumtzi, S., Roberts, M.L., Joyce, T., Euagelidou, M., Probert , L. , Frillingos, S., Fotsis, T., and **Pintzas, A.** (2010). Gene expression profile associated with oncogenic RAS-induced senescence, cell death and transforming properties in human cells. *Cancer Investigation* 28, 563-587.

38. Oikonomou E., Makrodouli E., Evagelidou, M., Joyce T., Probert, L. and **Pintzas A.** (2009). BRAFV600E efficient transformation and induction of MSI versus KRASG12V induction of senescence markers in human colon cancer cells. *Neoplasia* 11, 1116-1131.

37. Joyce, T., Cantarella, D., Isella, C., Medico, E. and **Pintzas A.** (2009). A molecular signature for Epithelial to Mesenchymal transition in a human colon cancer cell system is revealed by large-scale microarray analysis. *Clin Exp Metastasis* 26,569–587.

36. Oikonomou, E., Kosmidou, V., Katseli, A., Kothonidis, K., Mourtzoukou, D., Kontogeorgos, G., Andera, L., Zografos, G., and **Pintzas, A.** (2009). TRAIL Receptor Upregulation Correlates to KRAS/ BRAF Mutations in Human Colon Cancer Tumours and Respective Normal Tissue. *Int. J. Cancer* 125, 2127-2135.

35. Voulgari A. and **Pintzas, A.** (2009). Epithelial-Mesenchymal Transition in cancer metastasis: mechanisms, markers and strategies to overcome drug resistance in the clinic. *BBA Reviews on Cancer* 1796, 75-90. (5th most cited Journal's article)

34. Voulgari, A., Voskou, S., Tora, L., Davidson, I. Sasazuki T., Shirasawa, S., and **Pintzas, A.** (2008). TAF12 is important for Ras-induced transformation properties of colorectal cancer cells. *Mol. Cancer Res.* 6, 1071-1083.

33. Andreolas C., Kalogeropoulou, M., Voulgari, A. and **Pintzas, A.** (2008). Oncogenic Ha-RAS enhances Vimentin expression through FRA-1 to induce Epithelial Mesenchymal Transition in human colon carcinoma cells. *Int. J. Cancer* 122, 1745–1756.

32. Fostira F, Apessos A, Oikonomou E, Kouklis P, Baratsis S, Manifikos G, Andera L, Yannoukakos D, **Pintzas A**, Nasioulas G. (2008). Culture of primary epithelial adenoma cells from familial adenomatous polyposis patients. *Anticancer Res*. 28, 843-846.

31. Psahoulia, F. H., Drosopoulos K. G., Doubravska, L., Andera, L. and **Pintzas, A.** (2007). Quercetin enhances TRAIL-mediated apoptosis in colon cancer cells by inducing the accumulation of death receptors in lipid rafts. *Mol. Cancer. Ther* 6, 2591-2599.

30. Oikonomou, E., Kothonidis, K., Taoufik, E., Probert, L., Zografos, G., Nasioulas, G., Andera, L., and **Pintzas, A.** (2007). Newly Established Tumourigenic Primary Human Colon Cancer Cell Lines are Sensitive to TRAIL Induced Apoptosis in vitro and in vivo. *Br. J. Cancer* 97, 73 – 84.

29. Joyce T. and **Pintzas, A.** (2007) Microarray analysis to reveal genes involved in colon carcinogenesis . *Exp Opin Pharmacotherapy* 8, 895-900. (Review).

28. Psahoulia, F.H., Moumtzi,S., Roberts, M.L., Sasazuki T., Shirasawa S., and **Pintzas, A. (**2007). Quercetin mediates preferential degradation of oncogenic Ras and causes autophagy in Ha-RAS-transformed human colon cells. *Carcinogenesis* 28, 1021-1031.

27. Drosopoulos, K. and **Pintzas, A.** (2007). Multifaceted targeting in cancer: the recent death players meet the usual oncogene suspects. *Exp Opin Ther. Targets* 11, 641-659 (Review).

26. Oikonomou, E. and **Pintzas, A.** (2006). Cancer Genetics of Sporadic Colorectal Cancer: BRAF and PI3KCA Mutations, their Impact on Signalling and Novel Targeted Therapies. *Anticancer Res.* 26, 1077-1084 (Review).

25. Roberts, M., Drosopoulos, K., Vasileiou, G., Stricker, M., Taoufik E., Maercker, C., Guialis, A., Alexis, MN. and **Pintzas, A.** (2006). Microarray analysis of the differential transformation mediated by kirsten and harvey ras oncogenes in a human colon adenocarcinoma cell line. *Int. J. Cancer* 118, 616–627.

24. Drosopoulos, K. Roberts , M., Cermak, L., Sasazuki , T., Shirasawa, S., Andera L. and **Pintzas, A.** (2005). Oncogenic Ras transformation sensitizes human colon cancer cells to TRAIL induced apoptosis by upregulating DR4 and DR5 receptors through a MEK dependent pathway. *J. Biol. Chem.* 280, 22856-22867.

23. Munz, C., Psichari, E., Mandilis, D., Lavigne, A.-C., Spiliotaki, M., Oehler, T., Davidson, I., Tora, L., Angel, P. and **Pintzas, A.** (2003). TAF7 (TAFII55) plays a role in the transcription activation by c-Jun. *J. Biol. Chem.* 278, 21510-21516.

22. Psichari, E., Balmain, A., Plows, D. Zoumpourlis, V., and **Pintzas, A.** (2002). High activity of serum response factor in the mesenchymal transition of epithelial tumor cells is regulated by RhoA signaling. *J. Biol. Chem.* 277, 29490-29495.

21. Plows, D., Briassouli, P., Owen, C., Zoumpourlis, V., Garrett, M. and **Pintzas, A.** (2002). Ecdysone-inducible expression of oncogenic Ha-Ras in NIH3T3 cells leads to transient nuclear localisation of activated ERK regulated by MKP-1 phosphatase. *Biochem J.* 362, 305-315.

20. Cermak, L., Simova, S., **Pintzas, A.,** Horejsi, V. and Andera, L. (2002). Molecular mechanisms involved in CD43-mediated apoptosis of TF-1 cells: roles of transcription, Daxx expression and adhesion molecules. *J. Biol. Chem.* 277, 7955-7961.

19. Zoumpourlis, V.K., **Pintzas, A.,** Papassava, P., Solakidi, S., Papaevangeliou, D.. (2002). Biological and chemical approach of the inhibition of signaling cascades in mouse skin carcinogenesis. *Review Clinical Pharmacology Pharmacokinetics*, 16, 1,111.

18. Papathoma, A., Zoumpourlis, V., Balmain, A. and **Pintzas A.** (2001). Role of matrix metalloproteinase-9 in progression of mouse skin carcinogenesis. *Mol. Carcinogenesis* 31, 74-82.

17. Zoumpourlis, V., Papassava, P., **Pintzas, A.**, Moutsatsou, P. and Katsanakis, K. (2001). AP-1 transcription factor and steroid hormone receptors in multistage mouse skin carcinogenesis. Rev. *Clin. Pharmacol. Pharmacokin.,* 15, 123-128.

16. Zoumpourlis, V., Papassava, P., Linardopoulos, S., Gillespie, D., Balmain, A. and **Pintzas, A.** (2000). High levels of phosphorylated c-Jun, Fra-1, Fra-2 and ATF-2 proteins correlate with malignant phenotypes in the multistage mouse skin carcinogenesis model. *Oncogene* 19, 4011-4021.

15. Papathoma, A., Petraki, C., Grigorakis, A., Papakonstantinou, H., Karavana, V. Stefanakis, S., Sotsiou, F. and **Pintzas, A.** (2000). Prognostic significance of matrix metalloproteinases 2 and 9 in bladder cancer. *Anticancer Res.* 20, 2009-2014.

14. Giovane, A., **Pintzas, A.,** Maira, M., Sobieszczuk, P. and Wasylyk, B. (1994). Net, a negative ets transcription factor that is activated by Ras. *Genes and Development* 8, 1502- 1513.

13. Oehler, T., **Pintzas, A.**, Stumm, S., Darling, A., Gillespie, D. and Angel, P. (1993). Mutation of a phosphorylation site in the DNA binding domain is required for redox-independent transactivation of AP-1 dependent genes by vJun. *Oncogene* 8,1141-1147.

12. Hawker, K., **Pintzas, A.**, Hennigan, R., Gillespie, D.A.F. and Ozanne, B. Transformation by the fos and jun oncogenes does not increase AP-1 DNA binding activity (1993). *J. Virol.* 67, 5487-5495.

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