Research Staff

Gerassimos Voutsinas, Head of laboratory

Present Lab Members
Socratis Avgeris, MSc
2post-docs to be hired

Full list of Lab Members & Collaborators

Research Interests

A1. Identification and validation of drug targets for cancer therapy

A2. Development and evaluation of biomarkers for diagnosis, prognosis and response to treatment in human diseases.

B. Development of genetic testing protocols for molecular diagnosis of human genetic diseases

Recent and current research questions

A. Recently, the laboratory has focused his work on the molecular pathogenesis and response

to chemotherapy of urinary bladder cancer, which is the ninth most common malignancy worldwide. The low sensitivity of invasive disease in chemotherapy and high relapse percentages lead to poor five-year survival rates and make the study of the molecular mechanisms involved for valid prediction of disease outcome and selection of appropriate therapy particularly important.

1.

The role of PI3K-Akt pathway in urinary bladder cancer (Stephanos Kachrilas, MD, Dimitra Anastasiou, Socratis Avgeris,
MSc
, Maria Horti,
MD
,
PhD
, Ariana Gavriil,
PhD
, Sophia Tseleni-Balafouta,
MD
,
PhD
, Konstantinos Livadas,
MD
,
PhD
, Athanasios Papatsoris,
MD
,
PhD
, Gerasimos Alivizatos,
MD
,
PhD
, Charalambos Deliveliotis,
MD
,
PhD
, Dimitrios Stravopodis,
PhD
)

The PI3K-Akt pathway is often involved in carcinogenesis because of its regulatory role in cell proliferation
,
apoptosis
, invasion
,
and resistance
to chemotherapy
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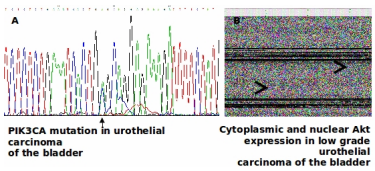


PIK3CA mutation in urothelial carcinoma of the bladder

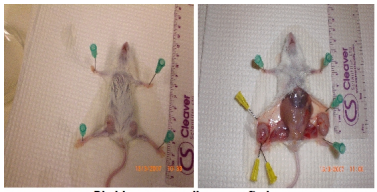
Cytoplasmic and nuclear Akt expression in low grade urothelial carcinoma of the bladder

Here, we focused on the mechanism of pathway deregulation, the molecules that play a key rol e in this
mechanism
,
and
the consequences
on
bladder cancer
cells.

1.

Epithelial to mesenchymal phenotype in bladder cancer cells (Eumorphia Konstantakou, PhD, Panagiotis Karkoulis,
PhD
, Georgios Koutlis,
MSc
, Ioannis Sfiniadakis,
MD
,
PhD
, Georgios Tsangaris,
PhD
, Ema Anastasiadou,
PhD
, Dimitrios Stravopodis,
PhD
)

In this activity, we were engaged in the study of the regulation of epithelial and mesenchymal markers in cancer cells of the bladder, based on the malignancy grade.



Bladder cancer cell xenografts in nude mice

We have compared cancer cell lines of varying degrees of differentiation, using flow cytometry, proteomic
analysis,
Western immunoblotting,
immunohistochemistry
,
cytogenetics and tumor
xenografts
in immunocompromised
mice
.

1.

Activity of conventional chemotherapeutic drugs in bladder cancer cell lines (Panagiotis Karkoulis, PhD, Eumorphia Konstantakou, PhD, Antonios Lampidonis, PhD, Sophia Melachroinou, MSc, Dimitra Anastasiou, Stephanos Kachrilas, MD, Gerasimos Aravantinos, MD, PhD, Ema Anastasiadou, PhD, Dimitrios Stravopodis, PhD)

Here, we were interested in the effect of conventional chemotherapy in different genomic context
s
of
bladder
cancer cells
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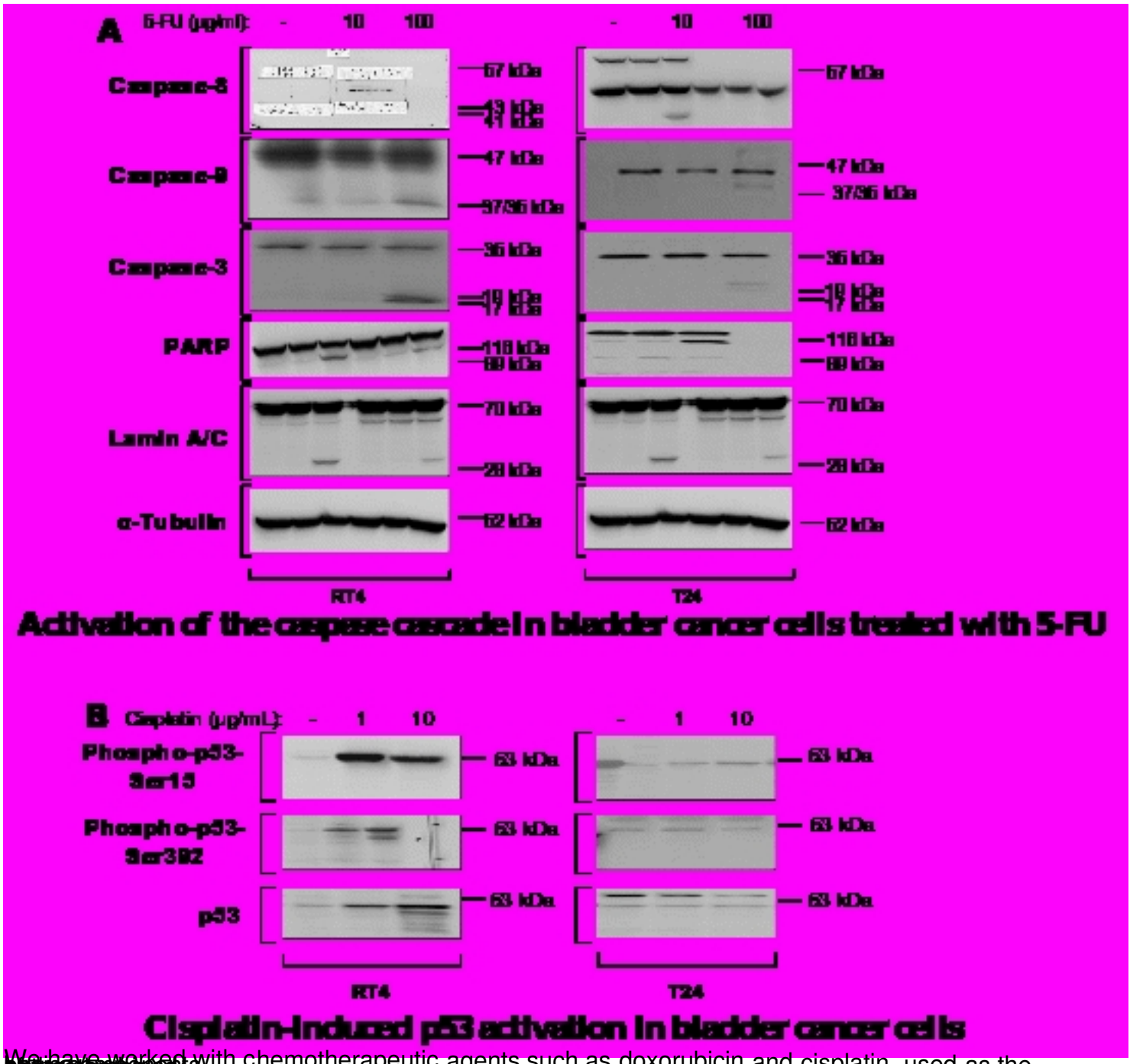
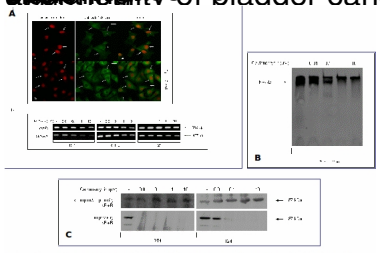
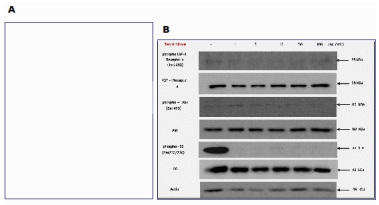


We have worked with chemotherapeutic agents such as doxorubicin and cisplatin, used as the [illegible] Inhibitors on bladder cancer cell lines Dimitrios Stravopodis, PhD) [illegible] have studied the effects of targeted inhibition of heat shock protein 90 (Hsp90 [illegible] of bladder cancer cells.

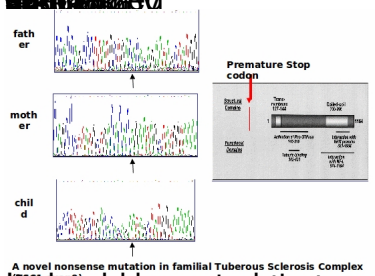


NF-κB nuclear exclusion in bladder cancer cells due to inhibition of Hsp90, as detected with the use of (A) immunofluorescence, (B) gel shift assay, and (C) isolation of cytoplasmic and nuclear extracts, followed by Western blot analysis

[illegible] we have analyzed the differential expression at the [illegible] Dimitrios Stravopodis, PhD, MSc, Director



G1 cell cycle block and phospho-S6 downregulation, but no other Akt pathway changes due to mTOR inhibition in



A novel nonsense mutation in familial Tuberous Sclerosis Complex

Laboratory of Molecular Carcinogenesis and Rare Disease Genetics - Institute of Biosciences & App