

# PAOLO DEMURTAS

## EDUCATION

**Ph.D.** in Morphological Sciences (January 19, 2008). Dissertation: *Uv-induced oxidative DNA damage and its effects on some cell-cycle regulation proteins in the pathogenesis of Pterygium. Immunohistochemical study.* Department of Biomedical Sciences, University of Cagliari, Italy.

**Master Degree** in Biological Science

## EMPLOYMENT

**2015- present**

Self-employed as a nutrition biologist.

## Research activity

**December 2012- 2014**

Fellow researcher in the University of Cagliari, Biomedical Sciences Department. At the present I'm involved in a project focused on prognostic factors in breast cancer. Moreover, I'm developing a UV-based system, to investigate the possible proteins alterations involved in normal cell cycle, in breast tissue.

Moreover, I'm leading a study on ACE insertion/deletion (I/D) polymorphism to investigate whether this polymorphism may be associated with pterygium risk in a case-control study in Sardinian population. At the same time, I'm leading a study on the RAS system in the eye compared with the pterygium disease.

**December 2009- June 2012**

Fellow researcher in the University of Cagliari, Biomedical Sciences Department. I'm involved in a project on RAS system in the Pterygium and normal conjunctiva. The study concerns the expression of ACE I and ACE II enzymes and the receptors (AT<sub>1</sub>, AT<sub>2</sub> and MAS) activities involved in the RAS system. Moreover, I'm leading a study on ACE insertion/deletion (I/D) polymorphism to

investigate whether this polymorphism may be associated with pterygium risk in a case-control study in Sardinian population.

### **December 2008 – November 2009**

Postdoc to the University of New South Wales, School of Medical Sciences, Faculty of Medicine, Department of Pathology, Sydney, Australia. I worked in the Nick Di Girolamo's lab, in collaboration with other investigators.

I was involved in a project on RAS system in the eye (Renin Angiotensin System). The study concerns the expression of two different enzymes, which are called ACE I (Angiotensin converting enzyme) and ACE II. I conducted immunohistochemical analysis on normal and pathological tissues. Moreover, I was involved in a tissue culture model of normal conjunctiva to study the damage due to UV-B radiation by molecular biology techniques (Q-PCR, Western Blotting, Elisa). The aim of my post-course it's been to look the differences among normal and pathological tissues and a possible relationship with the cell culture model.

### **February 2008-July 2008**

Researcher activity as fellow researcher in the University of Cagliari, Cytomorphology Department. In particular, I was involved in a study concerned with protein expression of COX-2 enzyme in Pterygium and its relationship with a marker of oxidative stress called 8-hydroxydeoxyguanosine (8-OHdG), and an antiapoptotic protein called Survivin.

## **Teaching experience**

### **Academic years 2024-2025**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

### **Academic years 2023-2025**

Contract professor of Anatomy and Neuroanatomy for Medicine and Surgery faculty, Nursing degree course.

### **Academic years 2023-2024**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

**Academic years 2023-2024**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

**Academic years 2022-2023**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

**Academic years 2022-2023**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

**Academic years 2022-2023**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

**Academic years 2022-2023**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

**Academic years 2021-2022**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

**Academic years 2021-2022**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

**Academic years 2019-2021**

Contract professor of Anatomy and Neuroanatomy for Medicine and Surgery faculty, Motor Sciences course.

**Academic years 2019-2020**

Contract professor of Anatomy and Neuroanatomy for Medicine and Surgery faculty, Dental Hygienist course.

**Academic years 2013-2017**

Contract professor of Anatomy and Neuroanatomy for Medicine and Surgery faculty, Physiotherapist course.

**Academic years 2011-2012**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

**Academic years 2010-2011**

Supplementary didactic activities of Human Anatomy, as well as, lectures and training, for physiotherapy students, University of Cagliari.

**Academic years 2009-2010**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

**Academic years 2007-2008**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

Supplementary didactic activities of Human Anatomy, as well as, lectures and training, for physiotherapy students, University of Cagliari.

Human Anatomy lectures for Medicine and Surgery students, University of Cagliari.

**Academic years 2005-2006**

Tutor activity for Medicine and Surgery students, and Human Anatomy lectures for Medicine and Surgery students.

Human Anatomy lectures for Medicine and Surgery students, University of Cagliari.

## **AREA OF EXPERTISE**

### **Immunoistochemistry**

Immunohistochemistry staining of proteins. Knowledge of laboratory instruments required for the multi-step processing of the samples used for immunohistochemistry, such as the sledge microtome, rotative microtome, cryostat, paraffin dispenser and microscope.

### **Molecular biology**

Knowledge of molecular biology, DNA, RNA extraction, Optimization of sybre green qPCR assays for Light Cycler 480 machine, DNA and mRNA analysis, SDS PAGE analysis and Western blot using the BioRad Transfer System. Study and characterization of conjunctiva culture models and its modification after UV-B irradiation by UV-B lamp.

## **Computer skills and competences**

Informatics competence using Microsoft Office package edition 2003 (Word, Excell, Power Point, Access, Outlook) and Adobe PhotoShop 6 and Corel DRAW Graphic Suite X5 for pictures, video editing for Windows, and internet and hardware supports. Competence in Open Office package for Windows and Adobe creator/reader. At the moment I'm using GraphPad InStat 3 and Microsoft package for statistical analysis of data from experiments and to present data at meetings.

## **Additional information**

I was awarded in January 2009 an English certificate (Upper intermediate level) issued by English Language Company School, Sydney, Australia. Attendance: 93%

## **Conferences**

- 6th Annual Cell Culture Technology Event: Recent advances, future prospects. London, UK

- International ABCD meeting. Mechanisms of Signal Transduction (MST 2012). Florence, Italy.
- International Federation of Societies for Histochemistry and Cytochemistry 2008 (ICHC), Gdansk, Poland;
- 61<sup>st</sup> National Congress of Italian Anatomy and Histology Society (SIAI), Sassari, 2007;
- 60<sup>th</sup> National Congress of Italian Anatomy and Histology Society (SIAI), Pavia, 2006;
- 59<sup>th</sup> National Congress of Italian Anatomy and Histology Society (SIAI), Sorrento 2005;

## Major research publications

**(Full papers are marked with \*)**

1. **\*DEMURTAS P**, ORRÙ G, CONI P, MINERBA L, CORRIAS M, SIRIGU P, ZUCCA I, DEMURTAS E, MAXIA C, PIRAS F, MURTAS D, LAI S, PERRA MT.

Association between the ACE insertion/deletion polymorphism and pterygium in Sardinian patients: a population based case-control study.

BMJ Open. 2014 Oct 23;4(10):e005627. doi: 10.1136/bmjopen-2014-005627.

2. **\*DEMURTAS P**, CORRIAS M, ZUCCA I, MAXIA C, PIRAS F, SIRIGU P, PERRA MT.

Angiotensin II: immunohistochemical study in Sardinian pterygium.

Eur J Histochem. 2014 Jul 28;58(3):2426. doi: 10.4081/ejh.2014.2426.

3. **\*MURTAS D**, PIRAS F, MINERBA L, MAXIA C, FERRELI C, **DEMURTAS P**, LAI S, MURA E, CORRIAS M, SIRIGU P, PERRA MT

Activated Notch1 expression is associated with angiogenesis in cutaneous melanoma.

Clin Exp Med. 2014 Jul 18. [Epub ahead of print].

4. **\* DEMURTAS P**, DI GIROLAMO N, CORRIAS M, ZUCCA I, CRISTINA MAXIA C, DIANA A, PIRAS F, LAI S, SIRIGU P, PERRA MT.

Immunohistochemical Analysis of Angiotensin Converting Enzyme in Sardinian Pterygium.

Histol Histopathol. 2013 Jun;28(6):759-66. Epub 2012 Dec 4.

5. \* LAI S, PIRAS F, SPIGA S, PERRA MT, MINERBA L, PIGA M, MURA E, MURTAS D, **DEMURTAS P**, CORRIAS M, MAXIA C, FERRELI C, SIRIGU P.

Nestin and vimentin colocalization affects the subcellular location of glucocorticoid receptor in cutaneous melanoma.

Histopathology. 2013 Feb;62(3):487-98. doi: 10.1111/his.12018. Epub 2012 Oct 16

6. **PAOLO DEMURTAS**, MICHELA CORRIAS, CRISTINA MAXIA, GERMANO ORRÙ, PIERPAOLO CONI, IGNAZIO ZUCCA, SIMONE LAI, FRANCA PIRAS AND MARIA TERESA PERRA.

Angiotensin-converting-enzyme (ACE) insertion/deletion (I/D) polymorphism and pterygium. A case-control study in Sardinian population.

International ABCD meeting. Mechanisms of Signal Transduction (MST 2012). Florence. Associazione di Biologia Cellulare e del Differenziamento cellulare. Abstract book, page 41

7. \* PIRAS F, IONTA MT, LAI S, PERRA MT, ATZORI F, MINERBA L, PUSCEDDU V, MAXIA C, MURTAS D, **DEMURTAS P**, MASSIDDA B, SIRIGU P.

Nestin expression associates with poor prognosis and triple negative phenotype in locally advanced (T4) breast cancer.

Eur J Histochem. 2011;55(4):e39.

8. **PAOLO DEMURTAS**, MARIA TERESA PERRA, CRISTINA MAXIA, IGNAZIO ZUCCA, MAURIZIO FOSSARELLO, SIMONE LAI, FRANCA PIRAS, PAOLA SIRIGU.

ACE I and ACE II : immunohistochemical study in primary pterygium and primary cultures from pterygium.

34° Congresso Nazionale della Società Italiana di Istochimica, San Benedetto del Tronto. Eur J Histochem, Volume 55/supplement 1: 15, 2011

9. FRANCA PIRAS, SIMONE LAI, MICHELA PIGA, MARIA TERESA IONTA, FRANCESCO ATZORI, LUIGI MINERBA, MARIA TERESA PERRA, CRISTINA MAXIA, DANIELA MURTAS, **PAOLO DEMURTAS**, VALERIA PUSCEDDU, MAURA MURRU, BRUNO MASSIDDA, PAOLA SIRIGU.

Nestin expression in human breast cancer : immunohistochemical study.

34° Congresso Nazionale della Società Italiana di Istochimica, San Benedetto del Tronto. Eur J Histochem, Volume 55/supplement 1: 26, 2011.

10. **PAOLO DEMURTAS**, MICHELA CORRIAS, CRISTINA MAXIA, GERMANO ORRÙ, VALERIA ARGIOLOS, PIERPAOLO CONI, IGNAZIO ZUCCA, SIMONE LAI, FRANCA PIRAS, LUIGI MINERBA, MARIA TERESA PERRA

Association between the angiotensin-converting enzyme (ACE) insertion/deletion (I/D) polymorphism and pterygium in Sardinian patients.

65° Congresso Nazionale della Società Italiana di Anatomia e Istologia, Padova. It. J. Anat, Vol. 116, No 1 (Supplement) 2011.

11. FRANCA PIRAS, SIMONE LAI, MARIA TERESA PERRA, MARIA TERESA IONTA, LUIGI MINERBA, FRANCESCO ATZORI, ESTER MURA, CRISTINA MAXIA, DANIELA MURTAS, **PAOLO DEMURTAS**, BRUNO MASSIDDA, PAOLA SIRIGU.

Association of nestin with anti-apoptotic and tumor suppressor factors in human breast cancer.

It. J. Anat, Vol. 116, No 1 (Supplement): 144, 2011.

12. SIMONE LAI, FRANCA PIRAS, ESTER MURA, SATURNINO SPIGA, MARIA TERESA PERRA, LUIGI MINERBA, MICHELA PIGA, DANIELA MURTAS, **PAOLO DEMURTAS**, MICHELA CORRIAS, CRISTINA MAXIA, PAOLA SIRIGU.

Nestin and vimentin intermediate filaments expression in cutaneous melanoma.

65° Congresso Nazionale della Società Italiana di Anatomia e Istologia, Padova. It. J. Anat, Vol. 116, No 1 (Supplement): 96, 2011.

13. \* MURTAS D, PIRAF F, MINERBA L, UGALDE J, FLORIS C, MAXIA C, **DEMURTAS P**, PERRA MT, SIRIGU P.

Nuclear 8-hydroxy-2'-deoxyguanosine as survival biomarker in patients with cutaneous melanoma. Oncol Rep. 2010;23(2):329-35.

14. \* PIRAS F, PERRA MT, MURTAS D, MINERBA L, FLORIS C, MAXIA C, **DEMURTAS P**, UGALDE J, RIBATTI D, SIRIGU P.

The stem cell marker nestin predicts poor prognosis in human melanoma. ONCOL REP. 2010 ;23(1):17-24.

15. \* IONTA MT, PERRA MT, ATZORI F, MAXIA C, PUSCEDDU V, **DEMURTAS P**, DEIDDA MC, PIRAS F, FRAU B, MURTAS D, MINERBA L, MASSIDDA B, SIRIGU P.

Long-term maintenance of prognostic value of survivin and its relationship with p53 in T4 breast cancer patients.

Experimental and Therapeutic Medicine. January 2010. 1: 59-64.

16. **PAOLO DEMURTAS**, MARIA TERESA PERRA, CRISTINA MAXIA, LUIGI MINERBA, IGNAZIO ZUCCA, MAURIZIO FOSSARELLO, SIMONE LAI, FRANCA PIRAS AND PAOLA SIRIGU.

ACE I and ACE II: immunohistochemical study in primary pterygium.

64° Congresso Nazionale della Società Italiana di Anatomia e Istologia, Messina-Taormina. It. J. Anat, Vol 115, No 1/2 (Supplement): 50, 2010.

17. \* MAXIA C, PERRA MT, **DEMURTAS P**, MINERBA L, MURTAS D, PIRAS F, CABRERA R, RIBATTI D, SIRIGU P.

Relationship between the expression of cyclooxygenase-2 and survivin in primary pterygium. Mol Vis. 2009;15:458-63. Epub 2009 Feb 27.

18. \* PIRAS F, PERRA M.T, MURTAS D, MINERBA L, FLORIS C, MAXIA C, **DEMURTAS P**, UGALDE J, RIBATTI D, SIRIGU P.

Combinations of apoptosis and cell-cycle control biomarkers predict the outcome of human melanoma.

Oncol Rep. 2008 Aug;20(2):271-7.

19. **PAOLO DEMURTAS**, CRISTINA MAXIA, MARIA TERESA PERRA, LUIGI MINERBA, DANIELA MURTAS, DIEGO CARPIO, ROMANO COLOMBARI, FRANCA PIRAS, PAOLA SIRIGU.

Relationship between cyclooxygenase 2 and survivin expression in primary pterygium.

2008 International Federation of Societies for Histochemistry and Cytochemistry (ICHC), Gdansk, Poland. Abstracts book, 659, 2008.

20. \* MAXIA C, PERRA MT, **DEMURTAS P**, MINERBA L, MURTAS D, PIRAS F, CORBU A, CARPIO GOTUZZO D, CABRERA GR, RIBATTI D, SIRIGU P.

Expression of survivin protein in pterygium and relationship with oxidative DNA damage.

J Cell Mol Med, 2008 Dec;12(6A):2372-80.

21. PIRAS F, MURTAS D, MINERBA L, UGALDE J, FLORIS C, MAXIA C, **DEMURTAS P**, VINTIMILLA R, PERRA MT, SIRIGU P.

Apoptosis-related factors and immune system cells in cutaneous malignant melanoma.  
2007 International Melanoma Congress, New York. *Pigment Cell Res*, 2007;20(6):569

22. MURTAS D, PIRAS F, MINERBA L, UGALDE J, FLORIS C, MAXIA C, **DEMURTAS P**, VINTIMILLA R, PERRA MT, SIRIGU P.

Oxidative stress and its relationship with p53 and survivin proteins in cutaneous malignant melanoma.

2007 International Melanoma Congress, New York. *Pigment Cell Res*, 2007;20(6):567

23. MURTAS D., PIRAS F., MINERBA L., UGALDE J., FLORIS C., MAXIA C., **DEMURTAS P.**, VINTIMILLA R., PERRA M.T., SIRIGU P.

Oxidative DNA damage and apoptotic or anti-apoptotic factors in cutaneous melanoma

61° Congresso Nazionale della Società Italiana di Anatomia e Istologia, Sassari, 2007. *It. J. Anat. Embryol*, Firenze, 112 (suppl. 1), 192, 2007.

24. **DEMURTAS P.**, PERRA M.T., MAXIA C., CORBU A., MINERBA L., MURTAS D., CARPIO D., COLOMBARI R., PIRAS F., SIRIGU P.

Expression of survivin protein and its relationship with oxidative DNA damage in pterygium.

61° Congresso Nazionale della Società Italiana di Anatomia e Istologia, Sassari, 2007. *It. J. Anat. Embryol*, Firenze, 112 (suppl. 1), 97, 2007.

25. PIRAS F, MURTAS D, MINERBA L, MAXIA C, FLORIS C, **DEMURTAS P**, PERRA M.T, SIRIGU P

Apoptotic and anti-apoptotic proteins in cutaneous malignant melanoma. 32° Congresso Nazionale della Società Italiana di Istochimica, Messina, 2007 *Eur J Histochem*, 2007, 51(suppl.2), 16.

26. PERRA MT, MAXIA C, CORBU A, MINERBA L, **DEMURTAS P**, MURTAS D, ZUCCA I, PIRAS F, SIRIGU P.

Oxidative stress and apoptosis markers in pterygium: immunohistochemical study. 32° Congresso Nazionale della Società Italiana di Istochimica, Messina, 2007 *Eur J Histochem*, 2007, 51(suppl.2),15.

27. PIRAS F, MURTAS D, MINERBA L, FLORIS C, MAXIA C, **DEMURTAS P**, PERRA MT, SIRIGU P.

Expression of Survivin, mitotic regulator and inhibitor of apoptosis, and the transcription factor p53 in cutaneous malignant melanoma. The 2007 UK Chromatin Meeting, Nottingham (UK), 2007. Abstract book, 38, 2007.

28. \* PERRA MT, MAXIA C, CORBU A, MINERBA L, **DEMURTAS P**, COLOMBARI C, MURTAS D, BRAVO S, PIRAS F, SIRIGU P.

Oxidative stress in pterygium: relationship between p53 and 8-hydroxydeoxyguanosine  
*Mol Vis*. 2006; 12:1136-42.

29. PERRA MT, MAXIA C, CORBU A, MINERBA L, **DEMURTAS P**, COLOMBARI R, MURTAS D, ZUCCA I, BRAVO S, PIRAS F, SIRIGU P.

Oxidative DNA damage and the relationship between p53 and 8-OHdG in pterygium. 60° Congresso Nazionale della Società Italiana di Anatomia, Pavia, 2006. *It. J. Anat. Embryol.*, 111 (suppl. 2), 205, 2006.

30. PIRAS F, MURTAS D, MINERBA L, UGALDE J, FLORIS C, MAXIA C, COLOMBARI R, **DEMURTAS P**, VINTIMILLA R, PERRA MT, SIRIGU P.

Expression of survivin, p53 and p16 proteins in cutaneous malignant melanoma: an immunohistochemical study. 60° Congresso Nazionale della Società Italiana di Anatomia, Pavia, 2006. It. J. Anat. Embryol., 111 (suppl. 2), 207, 2006.

31. PIRAS F, MURTAS D, MINERBA L, UGALDE J, FLORIS C, MAXIA C, COLOMBARI R, **DEMURTAS P**, VINTIMILLA R, PERRA MT, SIRIGU P.

The predictive value of survivin expression profile in the prognosis of cutaneous malignant melanoma with vertical growth phase.

60° Congresso Nazionale della Società Italiana di Anatomia, Pavia, 2006. It. J. Anat. Embryol., 111 (suppl. 2), 208, 2006.

32. PIRAS F, MURTAS D, MINERBA L, **DEMURTAS P**, MULAS P., MAXIA C, CORBU A.

Expression of the survivin, inhibitor protein of apoptosis, in cutaneous malignant melanoma: immunohistochemical study

59° Congresso Nazionale della Società Italiana di Anatomia, Sorrento, 2005. It. J. Anat. Embryol., 110 (suppl.1), 2005, 223.

33. CORBU A, MAXIA C, PIRAS F, MURTAD D, **DEMURTAS P**, ZUCCA I, SIRIGU P, PERRA MT.

Oxidative stress in pteridium. 59° Congresso Nazionale della Società Italiana di Anatomia, Sorrento, 2005. It. J. Anat. Embryol., 2005;110 (suppl. 1), 185.

## REFERENCES

### **Prof. Maria Teresa Perra, Ph.D.**

Department of Cytomorphology

University of Cagliari

Cittadella Universitaria

09042 Monserrato (CA), Italy

Tel +39 070 6754077

Fax +39 070 6754003

Email [perra@unica.it](mailto:perra@unica.it)

### **Nick Di Girolamo A/P, Ph.D.**

A/Professor

Director of Ocular Research

Centre for Infection and Inflammation Research,

School of Medical Sciences,

University of New South Wales,

Sydney, 2052, Australia.

PH: 61-2-93852538

FX: 61-2-93851389

EM: [n.digirolamo@unsw.edu.au](mailto:n.digirolamo@unsw.edu.au)

**Prof. Paola Sirigu, MD, Ph.D.**

Department of Cytomorphology

University of Cagliari

Cittadella Universitaria

09042 Monserrato (CA), Italy

Tel +39 070 6754077

Fax +39 070 6754003

Email [psirigu@unica.it](mailto:psirigu@unica.it)