SCHOOL OF HEALTH SCIENCES

LIFE AND HEALTH SCIENCES RESEARCH INSTITUTE
(ICVS)

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1. INTRODUCTION

1.1. The Life and Health Sciences Research Institute (ICVS) is a fully incorporated research structure within the new School of Health Sciences (ECS) of the University of Minho (UM).

The creation of the ICVS was guided, from the very beginning, by the following objectives:

- To promote original lines of investigation with recognized impact in biomedical fields.
- To develop post-graduation activities by promoting international post-graduated programmes.
- To provide specialised health services to the community.

At the same time, the ICVS, as a research structure within the ECS, should also assure that its staff develops a full academic career, including a strong involvement in research. The appropriate links between teaching and research were established in order to provide a "Research-Based Teaching and Learning Environment" for undergraduate students.

1.2. The years 2002 and 2003 were crucial for setting up the ICVS as a research unit integrated in the national system of science and technology. In this respect, the past year became an important milestone - the ICVS was formally acknowledged as a National Research Unit by FCT. Although the FCT's international panel of experts evaluation site-visit was performed on December 2003, its final evaluation report - containing a recommendation for funding, together with the rank of our unit according to the overall quality within international terms of reference - was only issued in February 2004. The panel's report *(Appendix I)* was very positive and the ICVS was ranked as Excellent. Therefore, the ICVS was considered by the FCT from January 2003 to January 2006 for its *Pluriannual Funding Program*, both basal and programmatic.

In spite of the panel considering that "the funding needs of the unit are large and acute", the programmatic financing granted to ICVS was disappointingly negligible (90 000 Euros). Hence, the year of 2004 was again marked by a constant demand for additional funding.

1.3. Notwithstanding the above difficulties, research continued to proceed on a firm basis, involving not only the academic staff but also a growing number of young researchers on fellowships and a few medical doctors from the affiliated hospitals.

The present report endeavours to give an overall view of the ICVS's main progresses and activities in 2004 and the underlying strategies.

2. STRATEGIES, OBJECTIVES AND PLANS FOR 2004

As stated in the 2003 Report, the strategy for the development of the ICVS was based on consolidation and integration. The ICVS intends to be not just one more research unit, but rather, a NOVEL research unit. To achieve this goal the following procedures have been implemented.

Integrated and shared management. One of the main difficulties in setting-up the ICVS has been its external funding. However, both the School and the University have continuously supported the development of appropriate laboratories in the provisional buildings. This situation still has meant a strong commitment of the School towards research, since it was necessary to cut in every possible way the current expenses (including staff contracts) in order to shift the financial resources towards the setting-up of laboratories and research facilities. In addition, the ECS continued to grant all research groups a small basal funding, and covered the maintenance costs of equipment and general products.

Function-oriented laboratories. Integrated management avoids duplication of equipment and facilities and rationalizes the use of human resources. The strategy was to put into operation a set of research laboratories organized by function in parallel with an internal network of Shared Facilities established to support, in a multidisciplinary way, the different research groups of the ICVS.

Multi- and inter-disciplinary research groups. The integrative policy implemented from the beginning had already a positive effect, since the initial groups, being integrated in an environment favourable to the establishment of inter-group collaborations and complementary experimental approaches, merged from the original six research areas into three wider research domains:

- INFECTIOUS DISEASES
- NEUROSCIENCES
- DEVELOPMENT AND NEOPLASIA

The critical mass of each has, therefore, been strengthened, which can certainly be considered a STRUCTURAL effect of the integrative policy.

Thus, 2004 was assumed as a period of consolidation for each research group, within the objective of focusing more on optimising the scientific production of every researcher, rather than on a large expansion of human resources. A goal was established to increase scientific production and to expand funded collaborative research projects.

Translational research. A main objective of the ICVS for 2004 was to enhance the clinical research infrastructure through the expansion of the breadth of clinical research activities and by sustaining an increasing number of “active” physicians in its research

faculty. This task is viewed as a critical tool to foster the productivity of physician-scientists who will strengthen translational research in academic health centers, both through their own studies as well as their mentoring of the next generation of physician-scientist trainees.

Innovative post-graduation. In 2004, and for the fourth consecutive year, high priority was established for post-graduation studies with a dual objective: i) contribute to a highly specialized in-service training of medical doctors under conditions compatible with their normal duties and schedules; ii) extend the opportunities for the access to formal Master or Doctoral degrees in the field of life and health sciences.

In accordance, it is intended to increase the number of MDs and professionals in health sciences enrolling in the post-graduated courses/workshops and to improve their assessment of the Courses. Furthermore, it was aimed that the involvement of health sciences professionals in the ICVS activities should shift in the near future to formal links to Master and PhD programmes. Taking advantage of being part of a Medical School, and in the scope of the assumed integrated policy, there is the intention to develop a MD/PhD program, with the collaboration of two universities from the United States of America, with a long and successful experience in MD/PhD programmes: the Thomas Jefferson Medical School, and the Columbia University Medical School. These collaborations will be formally established and a programme, to be developed indoors, will be presented during 2004-05. The MD/PhD programme will allow students enrolled in the medical degree at the ECS to interrupt their medical curriculum for a period of 3-4 years in order to develop research for a PhD thesis. Once successfully defended the PhD thesis, students return to the medical school to conclude the studies necessary to complete the MD degree. When finished, students have been awarded two degrees: MD and PhD.

3. ORGANIZATION AND MANAGEMENT

Following the ICVS implemented integrative policy, the research activities are organized at the following levels (see Fig. 1):

- Research Domains
- Research Areas
- Research Groups, each of them with a Principal Investigator (PI)

The ICVS governing bodies have been consolidated during 2004 and presently are (see Fig. 2):

- The Scientific Council;
- The Director, that liaises with the Scientific Council;
- The Directive Board

The present composition of the ICVS governing bodies is the following:

Scientific Council

(All ICVS members with a doctoral degree)

Permanent Members

- Adhemar Longatto Filho
- António Gil Pereira de Castro
- Armando Alberto Nova Pinto de Almeida
- Fernando José dos Santos Rodrigues
- Isabel Maria Mestre Palmeirim Alfarra Esteves
- Joana de Almeida Santos Pacheco Palha
- Joaquim Germano Pinto Machado Silva
- Jorge Manuel Nunes Correia Pinto
- Jorge Manuel Rolo Pedrosa
- Manuel João Tavares Mendes da Costa
- Maria Cecília Lemos Pinto Estrela Leão
- Maria de Fátima Monginho Baltazar
- Nuno Jorge Carvalho de Sousa
- Patrícia Espinheira Sá Maciel
- Paula Cristina da Costa Alves Monteiro Ludovico
- Raquel Gláucia Varzielas Pêgo de Andrade
- Rui Manuel Vieira Reis
- João Pedro Antunes Gomes Pereira

Invited Members

- Fernando Carlos de Lander Schmitt

The Scientific Council meets on a bimonthly basis, concentrating its activities on the (i) planning of the ICVS development, (ii) evaluation of the activities, (iii) establishment of guidelines and (iv) reinforcement of the links within the ICVS research groups and with other research institutions.

The ICVS Directive Board was internally nominated by the Scientific Council in November 2004, integrating one representative of each of the three main research domains and one representative from the ECS Directive Board. Its present composition is:

- Maria Cecília Lemos Pinto Estrela Leão (Coordinator)
- Jorge Manuel Rolo Pedrosa (representative of ECS Directive Board)
- Armando Alberto Nova Pinto de Almeida (representative of Neurosciences)
- Paula Cristina da Costa Monteiro Alves Ludovico (representative of Infectious Diseases)
- Isabel Maria Mestre Palmeirim Alfarra Esteves (representative of Development and Neoplasia)

The **ICVS Directive Board** meets on a fortnightly basis, concentrating its activities on (i) monitoring the ongoing activities, (ii) establishing the operating rules for the shared equipment in order to guarantee its rational and optimal use, (iii) determining the sharing of running expenses and (iv) planning the ICVS vital fund-raising.

At the operational level, there are:

- Coordination Groups of each of the major research domains that are composed by the members of the domain with a doctoral degree;
- Principal Investigators of the projects;
- Coordinators for each laboratory.

Furthermore, the ICVS, since formally acknowledged as a National Research Unit by FCT, should have an *External Advtinyisory Committee*, which will be appointed soon during 2005.

In the following figures (Fig. 1. and Fig. 2.), representative diagrams of the ICVS research organization and management, above described, are presented.

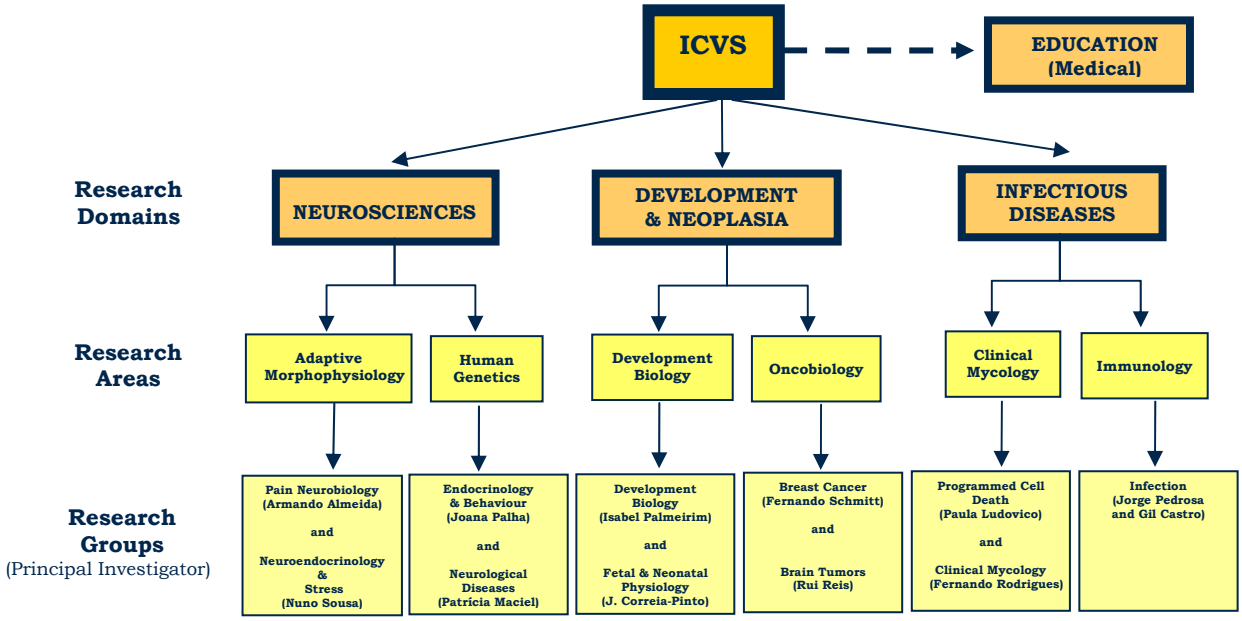

Fig. 1. CHART OF RESEARCH ORGANIZATION

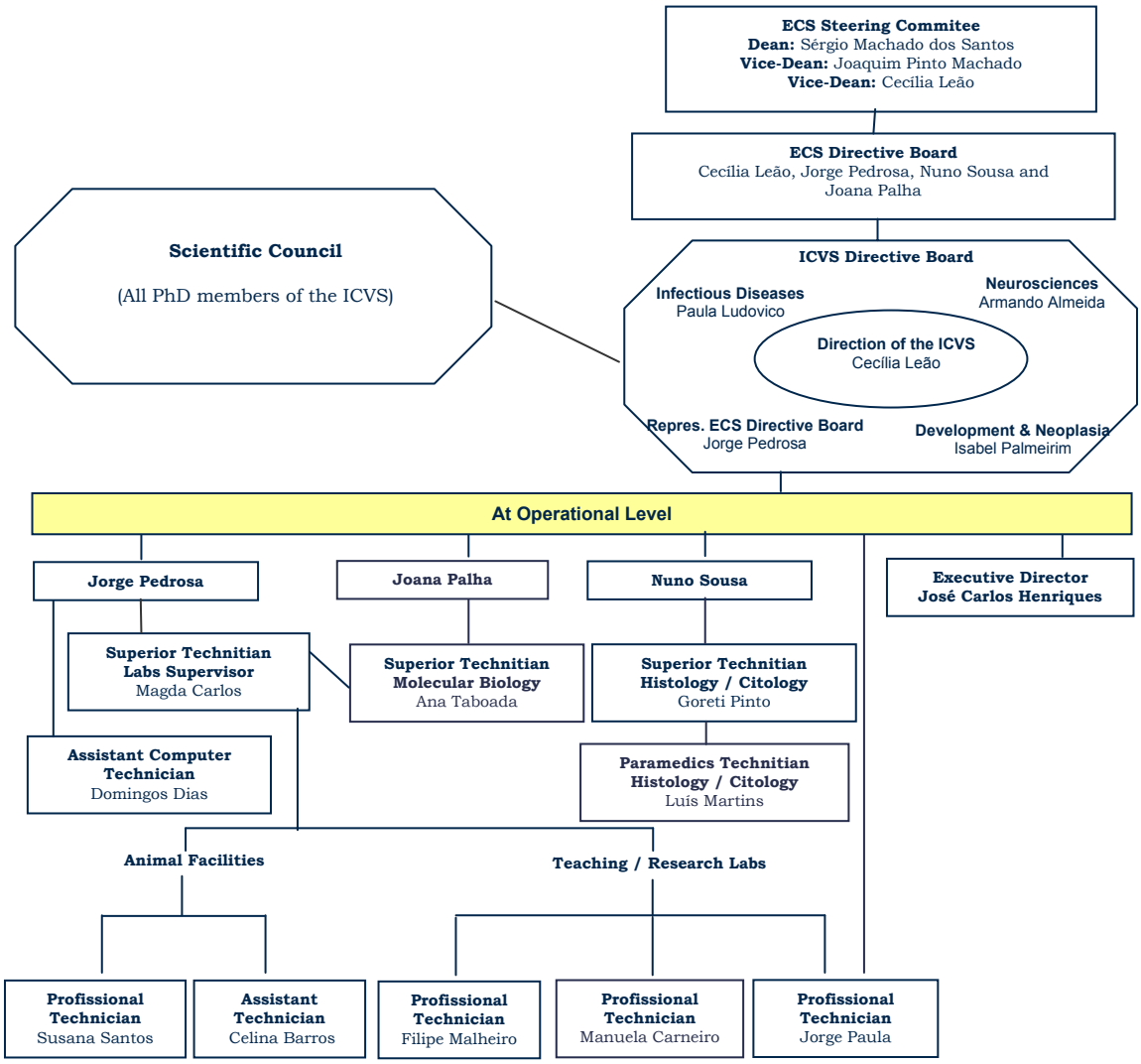

Fig. 2. **CHART OF ORGANIZATION AND MANAGEMENT**

4. ACTIVITIES IN 2004

4.1. Ongoing Research Areas / Teams

As it was referred, at present the research activities of ICVS are focused on three main research domains:

- INFECTIOUS DISEASES
- NEUROSCIENCES
- DEVELOPMENT AND NEOPLASIA

The major research lines that are being developed in the scope of these three areas and the corresponding teams are presented below.

(A more detailed information is available at http://www.ecsaude.uminho.pt/ following the link "Life and Health Sciences Research Institute (ICVS)"/"Research Domains".

A. INFECTIOUS DISEASES

Team

The infectious diseases team is presently composed of:

- 6 PhDs
- 7 PhD students
- 2 Master student
- 5 Research assistants
- 1 Technical assistant (Grant within a project)

Research Lines

- Human genetic factors predisposing susceptibility to invasive fungal infections
- Identification of clinically relevant fungi causing systemic mycosis
- Cellular and molecular studies in the pathogenic fungi *Paracoccidioides brasiliensis*: Dimorphism and its regulation by steroid hormones
- Epidemiology profile of dermatophytosis in Braga
- Elucidation of the mechanisms of action of non-conventional antifungal agents
- Exploitation of yeast as a model to study mitochondrial diseases and neurodegenerative disorder Batten disease
- Apoptotic pathway(s) in *Saccharomyces cerevisiae*: proteomic profile and metacaspase-interactive molecules
- Identification of pathogenic fungi secreted compounds
- Biology of infection in mycobacteriosis of difficult treatment- Buruli Ulcer
- Understanding BCG infection/vaccination; role of IFN-gamma and IL-17
- Role of anti-inflammatory cytokines in allograft rejection
- Expression and activation of murine Toll-like receptors in B lymphocytes
- Development of drug delivery systems for the treatment of mycobaceriosis

B. NEUROSCIENCES

Team

The Neuroscience team is presently composed of:

- 4 PhDs
- 16 PhD students
- 2 Master student
- 6 Research assistants
- 4 Assistants
- 2 Monitors

Research Lines

- Neuronal turnover regulation and its relevance for pathology
- From stress to cognition and pain: the role of corticosteroids and CRF
- Descending pain modulating networks
- Anatomical basis for the sensorymotor processing in the laryngeal mucosa
- Improving treatment of trigeminal neuralgia (TN) and epidemiology of TN in Portugal
- Studies on the role of transthyretin in energy metabolism
- Molecular basis of schizophrenia: the retinoid and thyroid hormone hypotheses
- Characterization of the iodine status in young women from Minho region and its relationship with the psychomotor development of the newborns
- Functional genomics of Machado-Joseph disease
- Rett Syndrome
- Functional characterization of the *MECP2* 3'UTR

C. DEVELOPMENT AND NEOPLASIA

Team

The Development and Neoplasia team is presently composed of:

- 7PhD
- 9 PhD students
- 1 Master student
- 4 Research assistants
- 4 Assistants
- 4 Monitors
- 1 Technical assistant (Grant within a project)

Research Lines

- Analysis of myopithelial component role in breast cancer development
- Analysis of DNA repair gene polymorphisms in a group of breast cancer patients from Portuguese origin
- Study of lymphangiogenesis in vascular lesions and breast cancer
- Analysis of receptor tyrosine kinases and intracellular signaling pathway alterations in gliomas
- Role of COX-2 and TP in the antitumoral response to Capecitabine in Hand and Foot Syndrome animal model

- The molecular clock is operating during limb bud development
- Characterization of the molecular clock components by using the yeast Two-Hybrid technology
- Subtraction screening to identify medial presomitic mesoderm genes
- Molecular and temporal characterization of the rostral-most somites in early somitic stages of the chick embryo
- The role of ghrelin in normal and hypoplastic fetal lung
- Prognostic factors in experimental and human congenital diaphragmatic hernia (CDH)
- The role of inflammatory mediators in normal and hypoplastic lung
- Induction of fetal lung growth by overexpression of growth factors through viral gene transfer in CDH rat model
- *In utero* fate mapping of Aorta-Gonad-Mesonephros cells
- Myocardium hypertrophy and pregnancy
- Fetal heart development in congenital diaphragmatic hernia
- Ghrelin expression and function during fetal heart development

4.2. Externally Funded Projects

A list of the ongoing projects coordinated by ICVS' members (PIs) that have been approved for external funding is presented below. This list includes the projects that have been submitted both (A) after the PIs' integration in the ICVS staff, and (B) before their integration (therefore, as members of their former research units).

A)

1. "Cellular and molecular studies in the pathogenic fungi *Paracoccidioides brasiliensis*: Dimorphism and its regulation by steroid hormones"
   Funding agency: FCT
   Funding for the ICVS team: 61.980 Euros
   Host Institution: ICVS, University of Minho
   Duration:3 years (2003-2006)
   ICVS team: Fernando Rodrigues (PI)
2. "Involvement of sphingolipid signaling in chronological life-span and cell death in *Saccharomyces cerevisiae* - role of Isc1p sphingomyelinase"
   Funding agency: FCT
   Funding for the ICVS team: 13.400 Euros
   Host Institution: Institute for Molecular and Cell Biology, University of Porto
   Duration: 3 years (2003-2006)
   ICVS team: Paula Ludovico (PI)

3. "Cognitive Modulation of Pain: interaction between the limbic system and the supraspinal pain control system"

   Funding agency: FCT
   Funding for the ICVS team: 90.000 Euros
   Host Institution: ICVS, University of Minho
   Duration: 3 years (2003-2006)
   ICVS team: Armando Almeida (PI)

4. "New aspects on coordinating limb bud development"

   Funding agency: FCT
   Funding for the ICVS team: 85.000 Euros
   Host Institution: ICVS, University of Minho
   Duration: 3 years (2003-2006)
   ICVS team: Isabel Palmeirim (PI)

5. "Molecules and mechanisms involved in the recognition of molecular patterns of pathogenic microorganisms: Implications for the susceptibility to relevant public health infections"

   Funding agency: Calouste Gulbenkian Foundation, *Programa de apoio à prevenção e rastreio de doenças infecciosas e oncológicas socialmente relevantes*
   Funding for the ICVS team: 170.000 Euros
   Host Institution: ICVS, University of Minho
   Duration: 3 years (2003-2006)
   ICVS team: Cecília Leão (PI)

6. "Mycobacteriosis of difficult treatment: Impact in public health"

   Funding agency: Calouste Gulbenkian Foundation
   Funding for the ICVS team: 100.000 Euros
   Host Institution: ICVS, University of Minho
   Duration: Duration: 3 years (2002-2005)
   ICVS team: Jorge Pedrosa (PI)

7. "Paragens de fermentações alcoólicas – causas múltiplas e soluções integradas"

   Funding agency: "Agência de Inovação/FCT"
   Funding for the ICVS team: 74.000 Euros
   Host Institution: Biology Center, University of Minho
   Duration: 3 years (2003-2006)
   ICVS team: Cecília Leão (PI)

8. "Apoptotic pathway(s) in *Saccharomyces cerevisiae*: proteomic profile and metacaspase-interactive molecules"

   Funding agency: FCT
   Funding for the ICVS team: 69.500 Euros
   Host Institution: ICVS, Minho University
   Duration: 3 years (2005-2008)
   ICVS team: Paula Ludovico (PI)

9. "The role of choroid plexus proteins in brain inflammation"

   Funding agency: FCT
   Funding for the ICVS team: 91.464 Euros
   Host Institution: ICVS, University of Minho
   Duration: 3 years (2005-2008)
   ICVS team: Joana Almeida Palha (PI)

10. "Characterization of the iodine status of Portuguese women in fertile age and its relation with the psychomotor performance of the newborn"
    Funding agency: (FCT)
    Funding for the ICVS team: 59.989 Euros
    Host Institution: ICVS, University of Minho
    Duration: 2005-2007
    ICVS team: Joana Almeida Palha (PI)
11. "P-cadherin in Breast Cancer: what regulates its aberrant expression and how it can induce invasion of neoplastic cells?"
    Funding agency: (FCT)
    Funding for the ICVS team: 10.000 Euros
    Host Institution: Institute for Molecular Pathology and Immunology, University of Porto
    Duration: 3 years (2005-2008)
    ICVS team: Rui Reis (PI)

B)

1. "Genetic Analyses of Multiple Sclerosis in Europeans (GAMES)"
   Funding agency: Pan-European collaborative study funded by the Welcome Foundation and the European Union
   Funding for the ICVS team: travel expenses and reagents
   Host Institution: University of Cambridge
   Duration: 2000-2004
   ICVS team: Patrícia Maciel (PI at the ICVS)
2. "Genetics and hormones in schizophrenia: thyroid hormones, vitamin A and transthyretin. A pilot study"
   Funding agency: FCT
   Funding for the ICVS team: 130.000 Euros
   Host Institution: Institute for Molecular and Cell Biology, University of Porto
   Duration: 2001-2004
   ICVS team: Joana Palha (PI)
3. "Molecular basis of schizophrenia: studies in the Portuguese and Brasilian populations"
   Funding agency: Exchange grant CAPES/GRICES 4.1.3.
   Total funding: Travel expenses
   Duration: 2001-2004
   Host Institution: Institute for Molecular and Cell Biology, University of Porto
   ICVS team: Joana Palha (PI)
4. "Genetic study of Migraine"
   Funding agency: FCT
   Funding for the ICVS team: 99.759 Euros
   Host Institution: Institute for Molecular and Cell Biology, University of Porto
   Duration: 2001-2004
   ICVS team: Patrícia Maciel (PI)

5. "Animal models for the study of Machado-Joseph disease"
   Funding agency: FCT
   Funding for the ICVS team: 104.747 Euros
   Host Institution: Institute for Molecular and Cell Biology, University of Porto
   Duration: 2001-2004
   ICVS team: Patrícia Maciel (PI)
6. "Experimental evaluation of an antimycobacterial-drug delivery system to *M. tuberculosis* infected macrophages"
   Funding agency: Calouste Gulbenkian Foundation
   Funding for the ICVS team: 64.841 Euros
   Duration: 2002-2004
   ICVS team: Jorge Pedrosa (PI)
7. "The immune response to allografts: role of anti-inflammatory cytokines"
   Funding agency: FCT
   Funding for the ICVS team: 60.000 Euros
   Host Institution: ICVS, University of Minho
   Duration: 2002-2004
   ICVS team: Gil Castro (PI)
8. "Searching of an essential function for transthyretin in the central nervous system"
   Funding agency: FCT
   Funding for the ICVS team: 130.000 Euros
   Host Institution: Institute for Molecular and Cell Biology, University of Porto
   Duration: 2002-2005
   ICVS team: Joana Palha (PI)
9. "Clinical, Epidemiologic and Genetic study of Rett syndrome in Portugal"
   Funding agency: FCT
   Funding for the ICVS team: 47.645 Euros
   Host Institution: Institute for Molecular and Cell Biology, University of Porto
   Duration: 2003-2006
   ICVS team: Patrícia Maciel (PI)
10. "Crystal structure determination of normal and expanded ataxin 3: Analysis of the structural determinants implicated in Machado-Joseph disease"
    Funding agency: FCT
    Funding for the ICVS team: travel and reagents (Total Funding: 75.000 Euros)
    Host Institution: Institute for Molecular and Cell Biology, University of Porto
    Duration: 2003-2006
    ICVS team: Patrícia Maciel (PI at the ICVS)
11. "Molecular and cellular characterisation of segmentation in the chick embryo"
    Funding agency: FCT
    Host Institution: Gulbenkian Institute of Science
    Duration: 2003-2006
    ICVS team: Isabel Palmeirim (PI)

Additionally, there are thirteen other projects that were submitted by ICVS PIs to FCT's *POCTI funding programme* and which are awaiting evaluation.

4.3. Scientific Production by ICVS Members

(Note: In the lists below, the ICVS members are underlined)

4.3.1. International Publications

A. Papers

1. Alves V.A., Bibbo M., Schmitt F.C., Milanezi F., Longatto-Filho A. Comparison of manual and automated methods of liquid-based cytology. A morphologic study. *Acta Cytol*, 48:187-93 (2004).
2. Alves-Araujo C., Almeida M.J., Sousa M.J., Leão C. Freeze tolerance of the yeast Torulaspora delbrueckii: cellular and biochemical basis. *FEMS Microbiol Lett*, 240:7-14 (2004).
3. Andrade R., Pascoal S., Palmeirim I. Thinking Clockwise. Brain Res Rev, *in press.*
4. Baptista M.J., Melo-Rocha G., Pedrosa C., Teles A., Estêvão-Costa, Areias J.C., Flake AW, Leite-Moreira A., Correia-Pinto J. Antenatal Vitamin A administration attenuates lung hypoplasia by interfering with early instead late determinants of lung underdevelopment in CDH. *J Pediatr Surg*, in press.
5. Basto D., Trovisco V, Martins A., Pardal F., Lopes J.M., Soares P., Reis R.M. B-Raf mutation analysis in human gliomas. *Acta Neuropathol, in press.*
6. Carvalho S., Silva A.O., Milanezi F., Ricardo S, Leitão D, Amendoeira I, Schmitt F.C. C-KIT and PDGFRA in breast phyllodes tumours: overexpression without mutations? *J Clin Pathol*, 57:1075-1079 (2004).
7. Correia-Pinto J., Henriques-Coelho T., Magalhães S., Leite-Moreira A.F. Pattern of right ventricular pressure fall and its modulation by afterload. *Physiol Res*, 53:19-26 (2004).
8. Costa M.C., Gomes-da-Silva J., Miranda C., Sequeiros J., Santos MM, Maciel P. Genomic structure, promotor activity and developmental expression of the mouse homologue of the Machado-Joseph disease (MJD) gene. *Genomics*, 84:361-373 (2004).
9. Duarte F.L., Pais C., Spencer-Martins I., Leão C. Isoenzyme patterns: a valuable molecular tool for the differentiation of *Zygosaccharomyces* species and detection of misidentified isolates. *Syst Appl Microbiol*, 27:436-42 (2004).
10. Fragoso A.C., Correia-Pinto J., Carvalho J.L., Dias J.A., Troncoso M.P., Estevão-Costa J. Ectopic pancreas and foveolar hyperplasia in a newborn: a unifying etiopathogenesis for gastric outlet obstruction. *J Pediatr Gastroenterol Nutr*, 39:92-94 (2004).
11. Freitas C., Rodrigues S., Saúde L, Palmeirim I. Running after the clock. *Int J Devel Biol, in press.*
12. Fulford L.G., Reis-Filho J.S., Parry SC, Smith I., Osin P., Lakhani S.R. The limitation of tissue-microarray for detection of basal markers in breast carcinoma. *Mod Pathol*, 17:114 (2004).
13. Fulford L.G., Reis-Filho J.S., Parry SC, Smith I, Osin P., Lakhani S.R. The limitation of tissue-microarray for detection of basal markers in breast carcinoma. *Lab Invest*, 84:114 (2004).
14. Fulford L.G., Reis-Filho J.S., Jones C., Ryder K., Gillett C., Steele D., Hanby A., Lakhani S.R. Basal like ductal carcinoma of breast: long term survival and patterns of metastases. *Mod Pathol*, 17:113 (2004).

15. Fulford L.G., Reis-Filho J.S., Jones C., Ryder K, Gillett C, Steele D., Hanby A. Lakhani S.R. Basal like ductal carcinoma of breast: long term survival and patterns of metastases. *Lab Invest*, 83:113 (2004).
16. Gonçalves O., Perez A., Henriques M., Prieto M., Reis-Lima M., Siebert M.F., Sousa N. Funcionamento Cognitivo E Produção Narrativa No Síndrome De Williams: Congruência Ou Dissociação Neurocognitiva? *Int J Clin Health Psychol, in press*.
17. Heinricher M.M., Neubert M.J., Martenson M.E. & Gonçalves L. Prostaglandin E2 in the medial preoptic area produces hyperalgesia and activates pain-modulating circuitry in the rostral ventromedial medulla. *Neuroscience*, 128:389-398 (2004).
18. Henriques-Coelho T., Correia-Pinto J., Roncon-Albuquerque Jr. R., Baptista M.J., Lourenco AP, Oliveira SM, Brandão-Nogueira A., Teles A. Fortunato J.M., Leite-Moreira A.F. Endogenous production of ghrelin and beneficial effects of its exogenous administration in monocrotaline-induced pulmonary hypertension. *Am J Physiol Heart Circ Physiol*, Aug 26 (2004).
19. Jones C., Mackay A., Grigoriadis A., Cossu A., Reis-Filho J.S., Fulford L., Dexter T., Davies S., Bulmer K., Ford E., Parry S., Budroni M., Palmieri G., Munro Neville A., O'Hare M.J., Lakhani S.R. Expression profiling of purified normal human luminal and myoepithelial breast cells: identification of novel prognostic markers for breast cancer. *Cancer Res*, 64:3037-3045 (2004).
20. Jones C., Ford E., Gillett C., Ryder K., Merrett S., Reis-Filho J.S., Fulford L.G., Hanby A., Lakhani S.R. Molecular cytogenetic identification of sub-groups of grade III invasive ductal breast carcinomas with different clinical outcomes. *Clin Cancer Res, in press*.
21. Lima-Rodrigues M., Nunes R., Almeida A. Intraepithelial nerve fibers project into the lumen of the larynx. *Laryngoscope,* 114:1074-1077 (2004).
22. Longatto-Filho A., Albergaria A., Paredes J., Moreira M.A.R., Milanezi F., Schmitt F.C. P-cadherin expression in glandular lesions of the uterine cervix detected by liquid-based cytology. *Cytopathology, in press*.
23. Longatto-Filho A., Martins A., Costa S.M.A, Schmitt F.C. VEGFR-3 expression in breast cancer tissue is not restricted to lymphatic vessels. *Pathol Res Pract, in press*.
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B. Book Chapters

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C. Abstracts in Congresses

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57. Teixeira-Castro A., Costa M.C., Constante-Pereira M., Sequeiros J., Santos M.M. Maciel P. Study of the Ferritin light Polypeptide (FTL) gene, including the cis-acting Iron-Responsive Element (IRE), in Portuguese patients with Huntington-like symptoms. *Am J Hum Gen*, 75, suppl: 2495 (2004).
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4.3.2. National Publications

A. Papers

1. Baptista M.J., Moreira J., Matos C., Pinto F. Transporte do recém-nascido com suspeita de cardiopatia congénita. *Consensos em Neonatologia*, Secção de Neonatologia da Sociedade Portuguesa de Pediatria, *in press*.
2. Carvalho C., Marcelino F., Matos C., Correia-Pinto J. Transporte do recém-nascido com doença cirúrgica. *Consensos em Neonatologia*, Secção de Neonatologia da Sociedade Portuguesa de Pediatria, *in press*.
3. El Zein L., Schon P., Chhin B., Guichard C., Sauer U., Bozon D., Baptista M.J., Bouvagnet P. Genetics of congenital heart defects. *Rev Port Cardiol*, 23:137-42 (2004).
4. Lemos L., Macedo G., Flores S., Moreira F.A. e Almeida A. A nevralgia do trigémio e a sua representação abstrata no arco íris e no reino animal. *CAR, in press*.
5. Moura C., Carriço A., Baptista M.J., Vieira A., Silva J.C., Moreira J. Valvotomia pulmonar percutânea no primeiro ano de vida. *Rev Port Cardiol*, 23:137-142 (2004).

B. Book Chapters

1. Pedrosa J., González-Méijone J.M. 2004. Bases de microbiologia e imunologia aplicadas à adaptação de lentes de contacto. In: "*Contactologia Aplicada Fundamentos de contactologia clínica*", *in press*.

2. Palmeirim I., Manaia A. - Translation (French to Portuguese) of the book "Des chimères, des clones et des genes" from Nicole Le Douarin" – 12 Chapters – 433 pages.

C. Abstracts published in Journal Supplements

1. Baptista M.J., Gonzaga S., Pedrosa C., Melo-Rocha G., Leite-Moreira A., Correia-Pinto J. Terapêutica pré-natal com vitamina A na HDC: efeito benéfico sobre os determinantes precoces da hipoplasia pulmonar. 7º Congresso Português de Pediatria. *Rev Port Pediatr, in press.*
2. Correia-Pinto J., Monteiro J., Ramalho C., Matias A., Rodrigues M., Guimarães H. Excisão de Tumor Cervical Fetal Gigante com Recurso ao Procedimento de EXIT. 7º Congresso Português de Pediatria. *Rev Port Pediatr, in press.*
3. Correia-Pinto J., Baptista M.J., Bastos P., Gonzaga S., Santos M., Roriz J-M., Silva S., Melo-Rocha G., Henriques-Coelho T., Leite-Moreira A., Tibboel D. O papel da Grelina no Desenvolvimento Pré-natal do Pulmão Normal e Hipoplásico: Um Novo Alvo Terapêutico no Tratamento Fetal da Hérnia Diafragmática Congénita. 7º Congresso Português de Pediatria. *Rev Port Pediatr, in press.*
4. Correia-Pinto J., Baptista M.J., Bastos P., Gonzaga S., Santos M., Roriz J-M., Silva S., Melo-Rocha G., Henriques-Coelho T., Leite-Moreira A., Tibboel D. O papel da Grelina no Desenvolvimento Pré-natal do Pulmão Normal e Hipoplásico: Um Novo Alvo Terapêutico no Tratamento Fetal da Hérnia Diafragmática Congénita. 7º Congresso Português de Pediatria, Lisboa. *Rev Port Pediatr, in press.*
5. Gonzaga S., Baptista M.J, Bastos P., Melo-Rocha G., Henriques-Coelho T., Leite-Moreira A., Correia-Pinto J. Caracterização da expressão génica de grelina durante o desenvolvimento cardíaco antenatal. *Rev Port Cardiol*, 23(Supl I):49 (2004).
6. Gonzaga S., Baptista M.J., Bastos P., Correia-Pinto J. Expressão de grelina ao longo do desenvolvimento cardíaco embrionário e fetal. 7º Congresso Português de Pediatria. *Rev Port Pediatr 2004 in press.*
7. Melo-Rocha G., Magalhães S., Roncon-Albuquerque R., Leite-Moreira A., Correia-Pinto J. Hipertrofia Fisiológica induzida pela Gravidez: As alterações morfológicas e moleculares estão limitadas ao ventrículo direito. *Rev Port Cardiol*, 23(Supl I):36 (2004).
8. Melo-Rocha G., Recamán M., Gonzaga S., Baptista M.J., Correia-Pinto J. O padrão de expressão das isoformas das cadeias pesadas de miosina está preservado no Coração de Fetos com Hérnia Diafragmática Congénita. 7º Congresso Português de Pediatria. *Rev Port Pediatr, in press.*
9. Henriques-Coelho T., Beleza A., Lourenço A.P., Roncon-Albuquerque R. Jr, Teles A., Correia-Pinto J., Leite-Moreira A.F. Efeitos da grelina sobre a activação autócrina/parácrina e função biventricular na insuficiência cardíaca. *Rev Port Cardiol*, (Supl. I):141 (2004).
10. Lourenço A.P., Roncon-Albuquerque R Jr., Wieland J., Henriques-Coelho T., Correia-Pinto J., Leite-Moreira A.F. Sobrecarga ventricular e activação autócrina/parácrina na progressão para a insuficiência cardíaca. *Rev Port Cardiol,* (Supl. I):139 (2004).
11. Silva C., Roriz J-M., Gonzaga S., Correia-Pinto J. Expressão de IL-6 e TNFa no Desenvolvimento Fetal do Pulmão Normal e Hipoplásico. 7º Congresso Português de Pediatria. *Rev Port Pediatr, in press.*

D. Conferences, Seminars and other Communications

1. Almeida, A. "Interacção entre o processamento Emocional e a Dor: papel da Amígdala", IV simposium de Perturbações Afectivas, Braga, Portugal.
2. Baptista M.J. "Scientific and technical advances in preventing sequela of cardiac malformations", XXI Aniversário do Serviço de Neonatologia do HSJ, VI Semminar in Neonatology, Porto, Portugal.
3. Baptista M.J. "Abordagem da paragem cardíaca na criança", Curso de Suporte de Vida Pediátrico, Hospital S. João, Porto, Portugal.
4. Baptista M.J. "Abordagem da paragem cardíaca na criança", Curso de Trauma Pediátrico, Hospital S. João, Porto, Portugal.
5. Baptista M.J. "Scientific and technical advances in preventing sequela of cardiac malformations". XXI Aniversário do Serviço de Neonatologia do HSJ, VI Semminar in Neonatology, July, 4-5, 2004. Porto.
6. Baptista M.J. Instrutora em acções de formação pós-graduada na área do Suporte de Vida Pediátrico, do Grupo de Reanimação Pediátrico Português.
7. Correia-Pinto J. "Technical advances in fetal and neonatal surgery", XXI Aniversário do Serviço de Neonatologia do HSJ, VI Semminar in Neonatology, Porto, Portugal.
8. Correia-Pinto J. "How to evaluate in practise the molecular, mechanical and hemodynamic phenotypes of the heart", Course on Research in Cardiology, Promoted by Portuguese Society of Cardiology, Vilamoura, Portugal.
9. Correia-Pinto J. "Physiology of breath regulation", Post-graduation course on physio-pharmacology for Pharmaceuticals, promoted by University of Porto, Porto, Portugal.
10. Correia-Pinto J. "Colestase Neonatal. Novos e velhos diagnósticos", 7º Congresso Português de Pediatria, Lisbon, Portugal.
11. Correia-Pinto J. "Fisiologia da regulação sérica do potássio", Curso de equilíbrio hidro-electrolítico, School of Health Sciences, University of Minho, Braga, Portugal.
12. Correia-Pinto J. "Fetal and neonatal treatment of congenital diaphragmatic hernia", Advance course on Fetal and neonatal Cardiology, Faculty of Medicine, University of Porto, Porto, Portugal.
13. Ludovico, P. "Yeast apoptosis", Department of Medical Genetics, University of Miami, School of Medicine, Miami, FL, USA.
14. Ludovico, P. "Yeast apoptosis". Department of Cell Biology and Anatomy, University of Miami, School of Medicine, Miami, FL, USA.
15. Palmeirim I. Workpackage: "Vertebrate Anterior/Posterior patterning", Meeting of the European Network of Excelence "Cells into organs". Geneve, Switzerland.
16. Palmeirim I. Workpackage: "Vertebrate somitogenesis", Meeting of the European Network of Excelence "Cells into organs". Braga, Portugal.
17. Sousa N. "Neuroanatomia das doenças bipolares", IV simposium de Perturbações Afectivas, Braga, Portugal.

Additionally, twenty communications (posters) in National Congresses were presented.

4.3.3. Research Prizes

1. "Best Oral Communication in Laringology", with the study "*Inervação sensitiva terminal da laringe (novos achados morfológicos)*", by Lima Rodrigues M., Valle-Fernandes A., Nunes R, Almeida A., presented in the *II Congresso Luso-Brasileiro de Otorrinolaringologia e Cirurgia Cérvico-Facial*, Porto (2004).
2. "Best Poster Award – Special mention", with the "*Laryngeal nerve endings Project into the lumen between the cilia*", realizado por Lima-Rodrigues M., Valle-Fernandes A., Nunes R. & Almeida A., presented in the *5th Congress of the European Laryngological Society*, Lisbon (2004).
3. "Best Poster Award", with the study "Trigeminal neuralgia and its abstract representation in the rainbow and animal kingdom", by Lemos L., Macedo G, Flores S, Moreira F.A., Almeida A., presented in the *V Foro del Dolor*, Las Palmas, Canárias (2004).
4. "Prize Aventis in Cardiology 2004" with the study "Melhoria hemodinâmica, morfológica e molecular promovida pela administração crónica de grelina num modelo animal de hipertensão pulmonar", by Henriques-Coelho T., Correia-Pinto J., Roncon-Albuquerque Jr., Baptista M.J., Lourenço A., Teles A., Leite-Moreira A.F.
5. "Prize Servier for Cardiac Heart Failure 2004" from the Portuguese Cardiology Society with the study "Sobrecarga ventricular e activação autócrina/parácrina na resposta hipertrófica e progressão para a insuficiência cardíaca" by Lourenço A.P., Roncon-Albuquerque R. Jr., Henriques-Coelho T., Correia-Pinto J., Leite-Moreira A.F.
6. "1st Prize for basic science from VIII JOCEM – Jornadas Científicas dos Estudantes de Medicina" with the work "Efeitos hemodinâmicos, morfológicos e moleculares da administração crónica de grelina na hipertensão pulmonar" by Oliveira S.M., Henriques-Coelho T., Correia-Pinto J., Roncon-Albuquerque Jr., Baptista M.J., Lourenço A., Teles A., Leite-Moreira A.F. (2004).
7. "1st Prize for the Best Poster of the 7º Congresso Português de Pediatria" with the work "A grelina como novo alvo terapêutico no tratamento fetal da hérnia diafragmática congénita" by Correia-Pinto, J., Baptista, M.J., Bastos, P., Gonzaga, S., Santos, M., Roriz, J.-M., Silva, C., Melo-Rocha, G., Henriques-Coelho, T., Leite-Moreira, A., Tibboel, D.
8. "Honor Mention Prize Maria Amélia de Mello for Health Sciences 2004" with the work "O papel da grelina no desenvolvimento pré-natal do pulmão normal e hipoplásico. Um novo alvo terapêutico no tratamento fetal da hérnia diafragmática congénita" by Correia-Pinto J., Baptista M.J., Bastos P., Gonzaga S., Santos M., Roriz J-M., Silva C., Melo-Rocha G., Roncon-Albuquerque R, Henriques-Coelho T, Leite-Moreira A, Tibboel D.
9. "Best Poster Award", with the study "Acute antenatal corticotherapy determines anxious phenotype and susceptibility to depression", by Bessa J.M., Oliveira M., Mesquita A., Sousa N., presented in the *10th Congress of the Portuguese Biological Psychiatry Society*, Lisbon (2004).
10. "Development Milestones: Time for segmentation". Nature, July 2004, S18 – reference to a 1997 publication by Isabel Palmeirim.

4.3.4. PhD and Master's Thesis

A. Thesis Concluded in 2004

- *Jie Lu.* Nuclear hormone receptor regulation of neurogenesis: combining gene transfection and genomic approaches. PhD degree thesis in Health Sciences–Neurosciences, University of Minho. Supervisors: Nuno Sousa (ICVS) and Osborne Almeida (Max Planck Institut, Germany)

- *Maria João Baptista.* "Retinoid modulation of fetal heart-lung growth in CDH". Master degree thesis in Molecular Medicine. Faculty of Medicine, University of Porto.
Supervisors: Jorge Correia-Pinto (ICVS) and Adelino Leite-Moreira (Faculty of Medicine, University of Porto)

B. Thesis under Development

The information regarding this heading is presented in *Appendix II*

4.4. Post-Graduation Programme

In 2004, and for the fourth consecutive year, we continued to invest in offering highly specialized training for medical doctors and investigators in basic sciences.

All together, the 2004 post-graduation programme, which counted with 300 participants, included eight courses and two workshops as follows.

Courses

1. "Microarrays: principles and applications in medicine"
   Coordinators: Rui Reis and Patrícia Maciel.
   May 24-27
2. "Photodynamic therapy" (2nd edition).
   Coordinators: João Moura, Sousa Bastos e Filipe Sansonety
   May 28-29.
3. "Genes and Neurons"
   Coordinators: Patrícia Maciel e Joana Palha.
   July 19-23
4. "Animal experimentation"
   Coordinators: Patrícia Maciel, Magda Carlos, Jorge Pedrosa.
   August 30-September 10.
5. "Fungi relevant in clinical practice: from biology to pathology and treatment"
   Coordinators: Paula Ludovico, Fernando Rodrigues, Cecília Leão.
   September 6-11.
6. "Biostatistics in health sciences"
   Coordinators: Pedro Nuno Oliveira, Joana Palha.
   September 13-17.

7. "Cerebral sulci and gyri: neuroanatomy"
   Coordinators: Nuno Sousa, Carlos Alegria.
   October 25-29.
8. "Cytokines in clinical practice"
   Coordinators: Jorge Pedrosa, Margarida Lima, Carlos Vasconcelos.
   October 14-16.

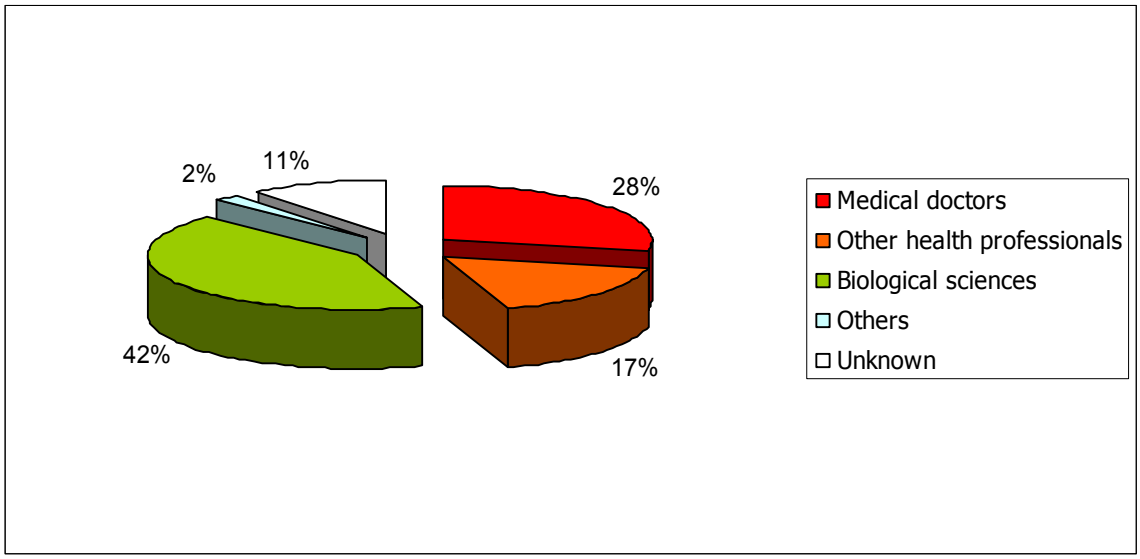
Workshops

1. "*C. elegans* as a model in teaching and research"
   Coordinator: Patrícia Maciel.
   February 25-27
2. "Training in pediatrics: acid-base and electrolytic equilibrium"
   Coordinator: Jorge Correia-Pinto, Almerinda Pereira, Pedro Freitas.
   October 11-12.

Note: Detailed information of the courses and workshops is available at:
http://ecs2002.ecsaude.uminho.pt/postgrad/2004/cartaz2004.pdf

For the first time one of our courses, "Genes and Neurons", was sponsored by the European Science Foundation. It should also be emphasized that, as a joint initiative with the Institute for Molecular and Cell Biology (IBMC) (University of Porto), we organized a course on animal sciences. This course provided international certification for the participants to perform and direct projects that use animals as models. It is our intention to alternate with IBMC in providing this course yearly. In addition, we were also able to offer a "hands on" course on neurosurgery. We believe to have conditions to install in the new facilities a laboratory of neurosurgery for advanced training. A new edition of this course is planned to take place in 2005. In addition to the courses, and as an attempt to attract different publics, two workshops were provided: one in the use of *C. elegans* as a model to teach in high schools and another on teaching physiology. Courses on teaching methodology are already planned for 2005.

The post-graduation programme was attended by participants distributed in the following backgrounds:



A questionnaire was filled by most of the participants (165 out of 300) to evaluate the post graduation activities. The overall evaluation provided the following results: *excellent* (53%), *good* (44%), *adequate* (3%), *poor* (0%), *unsatisfactory* (0%).
In most cases, participants considered that the courses should be repeated in the years to come and that would recommend it to a peer; which represents a great incentive to continue and consolidate our programme.

4.5. National and International Cooperations

Besides the cooperations mentioned below, the ICVS keeps regular scientific cooperation with several national and international research institutions. The information is available at http://www.ecsaude.uminho.pt/ following the link "Life and Health Sciences Research Institute (ICVS)"/"Research Domains".

A. Participation in Bilateral Actions

1. "Natural and pharmacological interventions for evaluation of hippocampal structure and function".
   Exchange grant ICCTI/DAAD.
   Principal Investigators: Nuno Sousa (ICVS, Portugal) and Osborne Almeida (Germany).
   Duration: 2002-2004.
2. "Glucocorticoid regulation of mood and cognition relevant neural substrates"
   Principal Investigators: Nuno Sousa (ICVS, Portugal) and Osborne Almeida (Germany).
   Duration: 2005-2006.

3. "Study of the molecular basis of schizophrenia in the Portuguese and Brasilian populations".
   Exchange grant CAPES in Brasil and ICCTI in Portugal for exchange of expertise and training.
   Principal Investigators: Joana Almeida Palha (ICVS, Portugal) and Paulo Belmonte de Abreu (Brazil).
   Duration: 2001-2004

B. Participation in International Networks

Isabel Palmeirim

- Member of the "EU network of excellence on the development of mesodermal organ systems".

Jorge Pedrosa

- Representative of the ICCTI in the "European and Developing Countries Clinical Trial Programme for Poverty-related Diseases".

Patrícia Maciel

- Member of the international consorcium for the study of the genetic susceptibility to Multiple Sclerosis - GAMES (Genetic Analysis of Multiple Sclerosis in the EuropeanS).

Rui M. Reis

- Portuguese Member of COST (European Cooperation in the field of Scientific and Technological Research) Action B19 (Molecular cytogenetics of solid tumors), Working Group 4 (DNA technologies).

4.6. Other Academic / Research Activities

A. Participation in Academic Juries

1. Almeida A., Jury member (*opponent*) for the Master Degree in Clinical Nutrition of Sandra Marília Pinheiro da Silva – "Modulação nutricional da proliferação de uma linha tumoral de carcinoma mamário", Faculty of Nutrition and Food Sciences, University of Porto.
2. Castro A.G., Jury member (*opponent*) for the PhD Degree in Biomedical Sciences of Isabel Malta – "Cloning and characterization of immunomodulatory proteins from *Streptococcus sobrinus*", ICBAS, University of Porto.
3. Castro A.G., Jury member (*opponent*) for the PhD Degree in Biomedical Sciences of Íris Caramalho – "Regulatory CD4 T cell function and dynamics in inflammation", ICBAS, University of Porto.
4. Correia-Pinto J., Jury member (*opponent*) for the Master Degree in Molecular Medicine of Ana Maria Beleza Meireles – "Insuficiência Cardíaca: Disfunção ventricular esquerda num modelo de hipertensão pulmonary – efeito da administração da Grelina", Faculty of Medicine, University of Porto.
5. Leão C., Jury member for the appointment of a Full Professor in Elementar Mathmatics and Studies of the Physical Environment for Children, University of Minho.

6. Leão C., Jury member for the appointment of an Associated Professor in Celular and Molecular Biology, Chemical Engineering Departament, Lisbon Thecnical University.
7. Leão C., Jury member for the appointment of an Associated Professor in Environmental Engeneering/Vegetal Ecophysiology, Trás-os-Montes e Alto Douro University.
8. Leão C., Jury member for the agregation proofs of Maria de São José Garcia Alexandre Nascimento da Fonseca, da Faculty of Pharmacy, University of Porto.
9. Leão C., Jury member (*opponent*) for the PhD Degree of Maria do Rosário Alves Ferreira dos Anjos.
10. Leão C., Jury member for the PhD Degree in Sciences of Maria Cecília Salgado Alves de Araújo, School of Sciences, University of Minho.
11. Leão C., Jury member (*opponent*) for the PhD Degree in Sciences of Dorit Ezlisabeth Schuller, School of Sciences University of Minho.
12. Leão C., Jury member (*opponent*) for the PhD Degree in Microbiologia of Ana Sofia Pinto de Carvalho, Portuguese Catholic University.
13. Leão C., Jury member for the PhD Degree in Health Sciences of Jie Lu, School of Health Sciences, University of Minho.
14. Leão C., Jury member (*opponent*) for the PhD Degree in Ciências Biomédicas of Hugo Alexandre de Carvalho Pinheiro Osório, Abel Salazar Biomedical Sciences Institute, University of Porto.
15. Leão C., Jury member for the PhD Degree in Chemical and Biological Engineering of Fernanda Isabel Teixeira Machado dos Santos, University of Minho.
16. Maciel P., Jury member for the Master Degree in Forensic Medicine of Pedro Manuel Oliveira e Sousa de Albergaria Resende – "Interest of the study of STRs in forensic investigation", Abel Salazar Institute for Biomedical Sciences, University of Porto.
17. Maciel P., Jury member for the Master Degree in Forensic Medicine of Andrea Louise Moutinho Gartner – "Contribution of MHC markers for paternity studies", ICBAS, University of Porto.
18. Maciel P., Jury member for the Master Degree in Forensic Medicine of Gabriela Maria Moura de Vasconcelos Lima – "Contribution of the study of mitochondrial DNA for the resolution of forensic cases", ICBAS, University of Porto.
19. Maciel P., Jury member for the exam allowing transition to definitive PhD student of Catarina Ramos – "Transcriptional dysregulation in Huntington disease" (GABBA Program), ICBAS, University of Porto.
20. Palha J.A., Jury member (*opponent*) for the Master Degree in Molecular Genetics of Carina de Fátima Rodrigues - "Molecular screening of the thyroid peroxidase gene in congenital hypothyroidism", Department of Biology, University of Minho.
21. Pedrosa J., Jury member for the PhD Degree in Biomedical Sciences of Inês Silva – "Effects of mercury on the immune system: epidemiological and experimental studies", ICBAS, University of Porto.
22. Pedrosa J., Jury member for the PhD Degree in Technology of Biomaterials of Alexandra Marques – "Biofunctionality and imunocompatibility of starch-based immunomaterials", Engineering School, University of Minho.
23. Sousa N., Jury member for the PhD Degree in Biomedical Sciences of Jie Lu – "Factors regulating hippocampal neuronal proliferation, migration and survival", Health Science School, University of Minho.

B. Participation in Evaluation Panels

1. Leão C., member of FCT evaluation panels for Master, PhD and Post-Doc grants.
2. Leão C., "Agência de Inovação/FCT", external evaluator for project applications.

C. Organization and presence in Scientific Committees of Congresses

1. Leão C., member of the International Scientific Committee of the "11th International Congress of Yeasts. Rio de Janeiro, Brazil, 2004.
2. Leão C., member of the Organizing and Scientific committees of "22nd Small Meetings on Yeast Transport and Energetics (SMYTE)". Azores, Portugal, 2004
3. Leão C., member of the Scientific committee of the "Congresso Nacional de Bioquímica", Vilamoura, 2-4 Dezembro de 2004
4. Palmeirim I., Organizer of the "Workpackage: "Vertebrate somitogenesis" meeting from the European Network of Excelence "Cells into organs". Braga, Portugal, 2004.

D. Membership of the Editorial Board of National / International Journals

1. Leão C., member of the International Commission for Yeasts – ICY
2. Leão C., member of the Editorial Board of the international journal "Microbiology"
3. Leão C., member of the Editorial Board of the international journal "FEMS Yeast Research"
4. Leão C., member of Direction Committee of the National Microbiology Society

4.7. "Ciência Falada no ICVS" – Talking About Science at ICVS

The so called "Ciência Falada no ICVS" was institutionalised in 2003, consisting on regular seminars – usually held on a weekly basis. To these meeting, internal and external scientists were invited to present their work. In 2004, 36 seminars were organized: 17 with PhD students, 10 with the PIs of the different research groups and 9 with external invited researchers.

4.8. Resources

4.8.1. Human Resources

The full composition of the regular research staff is summarized below and listed in *Appendix III*, together with their qualifications, rank and scientific area.

PhD Researchers
- 14 PhD (Lecturers)
- 3 Post-docs

Post-Graduation students
- 33 PhD students
- 4 Master students
- 31 Graduated researchers (7 Assistants and 6 Monitors at ECS; 18 research scholarships)

Non Academic Staff, shared with the School
- 9 Administration
- 10 Laboratories
- 4 Medical Education Unit

4.8.2. Infrastructures

ICVS is operating in provisional facilities. However, during the launching period of the institute the preparation of laboratories and scientific equipments was one of the main objectives, aiming at capacity building. It has been possible to put into operation a set of function-oriented laboratories/facilities which includes: Animal house; Imaging analyses facilities; Tissue processing facilities; Tissue and cell culture room; Rodent behavioural laboratory; Molecular biology laboratory; Level 2 and Level 3 biosafety laboratories.

The use of internal funding for the acquisition of equipments, training and recruitment of personnel was one of the most important achievements of the institute.

In 2004 particular attention continued to be devoted to the optimization and accreditation of the Animal Experimental Facilities, which are essential for all the priority research areas selected for the ICVS.

4.8.3. Financial Resources

One of our most significant challenges in the setting-up and maintenance of the ICVS has been fundraising.

In 2004 this challenge persisted, despite the financing of the ICVS by FCT's Research Units *Pluriannual Funding Program*. The ICVS was granted 202 500 Euros over three years as basal financing and 90 000 Euros as programmatic financing - of which 84 000 Euros and 5 000 Euros were, respectively, actual income in 2004.

Some of the research projects running at ICVS also had external financing from FCT, Calouste Gulbenkian Foundation, GRICES and other external funding institutions. The

detailed information about these projects is presented in section "4.2. Externally funded projects".

A contract with the Ministry of Science and Higher Education has been proposed for the infrastructural financing of ICVS, involving a total amount of 4.2 million Euros over a period of three years, with 20% co-participation from the School. The proposal was approved and the contract was signed in March 2004, but with a financing of only 20% of the proposed value, although with an indication that the remaining should be considered for co-financing from the *POCTI programme*. Contacts are proceeding with the Ministry and FCT for the effect.

Notwithstanding the external financing granted in 2004, the furtherance of the vital conditions for research activities at the ICVS was only possible due to the School's efforts. The financial allocations granted by ECS assured not only the integral acquisition of research equipments and facilities, but also covered the maintenance costs of facilities and general expenses (including the supply of general products) and continued to grant all groups a small basal funding.

We are aware of the crucial importance of diversification of funding sources not only because the programmatic funding granted by FCT was tiny (90 000 Euros over three years), but also due to the fact that the School cannot indefinitely go on financing the ICVS.

5. SELF-ASSESSMENT

Human resources

Since its creation, three years ago, there was a significant expansion of human resources, which allowed the consolidation of the research groups. Fig. 3 clearly shows the significant expansion of the human resources, namely the research staff, especially in 2003.

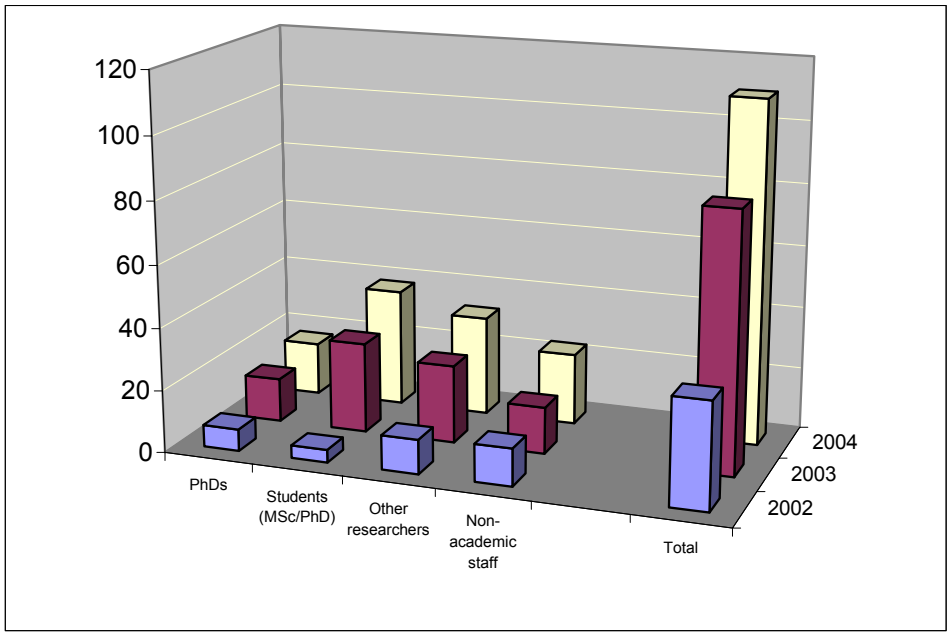


Fig. 3. ICVS's Expansion of Human Resources

Facilities

The research facilities consist of twenty laboratories. The principal design concept behind the set up of laboratories was to foster integration and collaboration among the research groups. Despite funding difficulties, as well as space constraints, we managed to build "an efficient structure, particularly so when space is limited" – in the FCT's Evaluation Panel words.

The main challenge for the near future is the new building for the School of Health Sciences, to be initiated in 2005 and completed by the end of 2006, which includes a specific area for the ICVS, with 6 000 m^2. Further equipment has been requested through several applications to FCT.

Scientific Results

Although the work load on the academic staff is still high, due to the planning and setting-up of the undergraduate and post-graduation programmes while undergoing the stabilisation of the new laboratories facilities, the results from the scientific work are already meaningful.

The main results achieved in 2004, compared with those from 2003, are summarised in the next table (Table 1). As it can be seen, in 2004, the scientific production of the ICVS members, expressed by the international scientific production indicators, increased - comparatively to 2003 - by about 20-25%. Additionally, one PhD and one Master thesis were concluded, ten prizes were awarded to researchers of the ICVS and ten Post-graduation courses and Workshops were organized.

Table 1. Scientific production in 2004 in comparison to 2003

Scientific Production	**2003**	**2004**
International publications		
Papers	**36**	**44**
Book Chapters	**3**	**3**
Abstracts in Congresses	**40**	**60**
National publications		
Papers	**1**	**5**
Book Chapters	**1**	**2**
Abstracts in Journal Supplements and in Congresses	**23**	**28**
Thesis concluded		
PhD thesis		**1**
Master thesis	**2**	**1**
Undergraduate thesis	**10**	
Thesis under development		
PhD thesis	**18**	**32**
Master Thesis	**2**	**7**
Scientific research prizes	**5**	**10**
Post-graduation courses and Workshops organized by the ICVS	**6**	**10**

6. PLANNING FOR 2005

6.1 The implemented integrative policy had a positive and structural effect in strengthening the critical mass of the research groups and was highly praised by the international panel that assessed the ICVS.

The three main research areas are now well established and the experience of the past two years permitted a consolidated overview of the research projects that the ICVS should engage in. We will strengthen the enhancement of scientific production and expand funded collaborative research projects, particularly at international level.

6.2. The new building for the School of Health Sciences, to be completed by the end of 2006, includes a specific area for the ICVS, with 6 000 m^2. This will represent a significant improvement of the installations dedicated to research, although it also implies further equipment (several applications to FCT have been advanced).

6.3. The post-graduation programmes should include an increasing involvement of health sciences professionals and shift to formal bounds to Master and PhD programmes. The implementation of a MD/PhD programme, for which we count with the enthusiastic collaboration of the Thomas Jefferson Medical School and the Columbia University Medical School, will be the major challenge for 2005. This programme is intended to provide training research summer courses, and to develop most of the PhD thesis as joint research projects between the ICVS and the health units in which the students develop their medical career.

Moreover, we also intend to present a programme of continuous medical education, to be implemented along 2005-06.

6.4. The goal of the ICVS for the period 2005-06, probably the most structuring and decisive one, is to enhance the clinical research infrastructure through the expansion of the breadth of clinical research activities and by sustaining an increasing number of "active" physicians in its research faculty. This task is viewed as a critical tool to foster the productivity of physician-scientists who will strengthen translational research in academic health centers, both through their own studies as well as their mentoring of the next generation of physician-scientist trainees. Traditionally, clinical-oriented research centers have had an influent role in the development of medical advances, thereby setting standards for the practice of medicine and the quality of health care.

6.5. Therefore, specific aims, besides including some from the previous years, are the following:

- continue promoting the conditions for a steady participation of the academic staff in research projects and for attracting new researchers on fellowship schemes;
- enhance the scientific production by at least 30-40% in every group and expand funded collaborative research projects, particularly at international level;

- increase the number of independent clinical research investigators who use the ICVS for at least 25% of their working time, in order to competitively apply for general clinical research funding;
- proceed with the post-graduation programmes, including the MD/PhD programmes formally approved by the University;
- actively pursue the complement of the contract established with the FCT for the ICVS's financing;
- actively seek other fundraising sources;
- start offering some specialized services to the national health system especially to the local community, as soon as the appropriate facilities are ready.

7. FINAL REMARKS

The most prominent features that emerge from the critical analysis of the ICVS's progression are the registered consolidation of the core strategies set up for 2004 and the continuing enthusiasm, commitment, permanent availability and competence of all community members – faculty, staff, and students - which constitute the great wealthiness of the Center.

The **strong points** of ICVS also include:

- the recognition of the ICVS by the FCT, ranked as *Excellent*, and the commitment to research, involving the students;
- the standards of the working spaces and equipment, in spite of their provisional status, and the function-oriented organisation of the facilities, which allowed to keep all members of the academic staff active in research and attract a meaningful number of graduate students into the research projects;
- the innovative and flexible coordination and management procedures;
- the continuous support from the Rector and the University;
- the goal established by the Lisbon Strategy, to reach 3% of the GDP for investment in R&D by 2015, in the scope of the ambitious objective to make the European Union knowledge based economy more dynamic and competitive in the world, raises expectations for a better support to innovative projects and opens a window of hope and opportunity for the School and for the ICVS.

The main **weaknesses** are related with ICVS facilities and funding.

The heavy bureaucratic process for the construction of the new School building is finally coming to an end and it is essential that the works start very soon and proceed efficiently.

We have a critical need of several core types of equipment and infrastructures. In the FCT's Evaluation Panel own words: "These (several core types of equipment) will be required for the center to become fully competitive with laboratories in the US and Europe".

The ICVS has a critical need of a proper financial support to sustain and consolidate research activities. This assertion is valid both for basal (reagents and maintenance) as well as for programmatic (acquisition of equipment) funding. It is important to remember that existent equipment was integrally funded by the ECS. Without the School's support research will stagnate or, even, collapse.

A Final Comment

In conclusion, it is our deep conviction that, albeit the above difficulties, all the main goals for 2004 were achieved through the constant institutional support of the School together with the enthusiasm and commitment of all ICVS Members.

We are confident that considerable additional progress will be made in 2005 to further establish our goals, objectives and early accomplishments.

The goals that we have set forth for 2005 are attainable and will enable the ICVS to consolidate the high standards of quality and excellence in its collective and individual achievements.

We are aware of the crucial importance of diversification of funding sources. Despite the lack of tradition in private funding of research in Portugal, we are launching a *Funding Committee* aiming to find alternative sources of financial support.

As a corollary of all that as been stated, the ICVS intends to be not just one more research unit, but rather, a NOVEL research unit. To achieve this goal the ICVS hereby shares a commitment to strive by all means to accomplish its core mission:

TO BECOME AN INTERNATIONAL RESEARCH CENTER OF EXCELLENCE
IN LIFE AND HEALTH SCIENCES
that

SEEKS TO ADVANCE THE FRONTIERS OF KNOWLEDGE
through:

* A STATE-OF-THE-ART INNOVATIVE RESEARCH WITH TRANSLATION TO HEALTH CARE

* A RESEARCH-BASED TEACHING-LEARNING ENVIRONMENT

Cecília Leão

ICVS Director
January, 2005

APPENDICES

APPENDIX I
FCT's International Pannel Evaluation Report

APPENDIX II
PhD, Master and other Research Students: Thesis, Themes and Supervisors

APPENDIX III
List of Researchers and Administratives at the ICVS

APPENDIX I

FCT's International Pannel Evaluation Report

FCT Fundação para a Ciência e a Tecnologia

MINISTÉRIO DA CIÊNCIA E DO ENSINO SUPERIOR Portugal

RESEARCH UNIT NUMBER 8 / **652**

COORDINATOR Maria Cecília de Lemos Pinto Estrela Leão

RESEARCH UNIT NAME Instituto de Investigação em Ciências da Vida e Saúde

Universidade do Minho

Health Sciences

PANEL MEMBERS Murray D. Altose, Abraham Aviv, Neil Cherniack, Edward Dwyer , Allen B. Clarkson, Jr., Robert Wallis, Ruy Lourenço (Coordinator)

Overall Research Unit Quality
● Excellent ○ Very Good ○ Good ○ Fair ○ Poor

Comments and recommendations regarding the Unit activities, research orientation, organization and application of funds

Health Sciences - 2 ***Excellent***

This is an application for the formation of a new unit, the ICVS, which includes a group of faculty equal to 23 full-time-equivalent positions in the new medical school at the University of Minho. This new medical school emphasizes the connection between research activity and teaching and the ICVS is considered the heart of the new school.

Strengths:
The members of this new center are very enthusiastic regarding its potential, and in particular, regarding the collaborative nature of the research enterprise. Research projects have been selected based on their importance as health problems in Portugal and on the potential for the Center to substantially impact these problems. The work is concentrated in three general areas:
1) Infectious disease: This area includes 6 PhDs and 4 students. The research topics are various mycoses and mycobacterial pathogenesis.
2) Neuroscience: This program includes 3 PhD´s, 1 MD PhD and 11 students. The emphasis is research on pain, stress and cognition, and the role of hormones and genetics in schizophrenia.
3) Development and neoplasia: There are 3 PhD´s, 3 MD PhD´s and 7 students in this group and the work is on the angiogenesis role of oncogenes.

Perhaps the most unusual feature of ICVS is that all members, including physicians, have protected time for research. This is very important because it provides a career path absent from any other center we reviewed. The quality of the science in these areas is excellent and this is no doubt due to the fact that this protected time both attracts good scientists and allows them to build research programs.

Publications and funding have been outstanding, particularly given the work disruption always caused by the creation of a new medical research facility. The current class of PhD students numbers about 50, with plans to increase this to 100 shortly. The training environment for student is excellent. The extent of international collaborations for research and training is excellent, with particular links to Columbia and Thomas Jefferson universities in the US.

The laboratories are set up according to function rather than having space assigned to individual investigators. This is an efficient structure, particularly so when space is limited as it is now because they are housed in temporary quarters. Despite the space limitations, they have managed to create separate special laboratories for tissue culture under BSL2 and BSL3 conditions as well as ordinary laboratory BSL1 conditions. They have a special PCR room with filtered air to block cross contamination. Other laboratories are designed for molecular biology

They have also constructed well-designed barrier animal facilities for working with fragile animals and other facilities for work with pathogens under BSL 2 conditions. These have the needed positive and negative air pressure, HEPA filtered supply and exhaust, backup power, antechambers for control of entry, shower for personnel, double sided autoclave, etc. as needed for this type of work.

Weaknesses:
The funding needs of the unit are large and acute. Adequate library facilities are not yet in place. Funding support is required to obtain adequate access to electronic journals, a critical need. Several core types of equipment have not yet been purchased, including confocal and electron microscopes, cell sorter, beta and gamma counters, HPLC, and an automated DNA sequencer. These will be required for the center to become fully competitive with laboratories in the US and Europe.

The number of middle level trainees (post docs) is not yet adequate to supplement the oversight of more senior investigators. This is to be anticipated in the creation of a new research unit, and will very likely be corrected as the unit grows.

APPENDIX II

PhD, Master and other Research Students:
Thesis, Themes and Supervisors

PhD and Master Students: Thesis, Themes and Supervisors

RESEARCH AREA	POSITION	STUDENT	SUPERVISOR(S)	THESIS THEME
Infectious Deseases	PhD(BD)	Almeida, Agostinho	Cecília Leão Fernando Rodrigues (ICVS)	Cellular and molecular analysis of the dimorphic fungi *Paracoccidioides brasiliensis*
	PhD(BD)	Carvalho, Agostinho	Fernando Rodrigues Patrícia Maciel (ICVS)	Susceptibility of immunosuppressed patients to invasive fungal infections: analysis of molecular factors
	PhD(BD)	Osório, Nuno	Fernando Rodrigues (ICVS) David Pearce (Univ. Rochester-USA)	Yeast models of neuronal ceroid lipofuscinosis: From different genes to common biological features
	MT	Martins, Margarida	Fernando Rodrigues (ICVS)	Studies in *Paracoccidioides brasiliensis*: Development of mollecular genetic tools
	MT	Oliveira, Rodrigo	Paula Ludovico (ICVS)	Elucidation of the molecular basis of human mitochondrial neuromyopathies associated to citochrome oxidase deficiency: use of *Saccharomyces cerevisiae* as a model
	PhD(BD)	Almeida, Bruno	Paula Ludovico (ICVS)	Apoptotic pathway(s) in Saccharomyces cerevisiae: proteomic profile, metacaspase-interactive molecules and neurodegeneration
	PhD(BD)	Cruz, Andrea	Jorge Pedrosa (ICVS) Andrea Cooper (Trudeau Institute-France)	Understanding BCG vaccination: implications for the design of new preventive strategies against mycobacteriosis
	PhD(BD)	Torrado, Egídio	Jorge Pedrosa (ICVS)	Characterization of cellular and molecular immune responses in experimental infection by mycobacteria
Neurosciences	PhD(BD)	Costa, Mª do Carmo	Patrícia Maciel (ICVS) Jorge Sequeiros (ICBAS) Manuela Santos (Univ. Montreal-Canada)	Study of the homologue in Mus musculus of the Machado-Joseph disease gene
	PhD	Costeira, Maria José (MD)	Joana Palha (ICVS) Susana Ares (Alberto Sols Institute, Madrid-Spain)	Maternal causes of transitory neonatal hypothyroidism: evaluation of pregnant women in the Minho region of Portugal
	MT	Lessa, Lira	Patrícia Maciel (ICVS)	Study of the homologue in *Gallus gallus* of the Machado-Joseph disease gene
	PhD(BD)	Marques, Fernanda	Joana Palha (ICVS)	Searching for the function of transthyretin in the energy metabolism and of the choroid plexus in inflammation

Neurosciences (cont.)	PhD(BD)	Ruano, Dina	Joana Palha (ICVS) Patrícia Maciel (ICVS)	Genetics of schizophrenia: the retinoid and thyroid hormone hypothesis
	PhD(BD)	Rodrigues, Ana João	Patrícia Maciel (ICVS)	Cellular and physiological changes associated with absence of Josephin: study in *C. elegans*
	PhD(BD) (UP)	Santos, Mónica	Patrícia Maciel (ICVS)	Study of the pathogenesis of Rett Syndrome and the role of protein MeCP2 in neuronal function
	PhD(BD) (UP)	Sousa, João Carlos	Joana Palha (ICVS)	Searching for an essential function for transthyretin in the central nervous system
	PhD	Almeida, Rui (MD)	Nuno Sousa (ICVS)	Telemetria aplicada à medição de parâmetros intracranianos
	PhD	Cerqueira, João (MD)	Nuno Sousa (ICVS)	Structural reorganization of the prefrontal cortex by corticosteroids and CRH
	PhD(BD)	Gonçalves, Leonor	Armando Almeida (ICVS) Antti Pertovaara (Univ Helsinki-Finland)	The interaction between the limbic system and chronic neuropathic pain – the role of the amygdala
	PhD	Lemos, Laurinda (MD)	Armando Almeida (ICVS) Teresa McIntyre (IEP-UM)	New therapies for the treatment of trigeminal neuralgia
	PhD(BD)	Mesquita, Ana Raquel	Nuno Sousa (ICVS)	Assessing acute and long-term neurological sequelae of seizures on the "limbic" brain: the influence of early life stress and hyperthermia
	PhD	Pêgo, José Miguel MD	Nuno Sousa (ICVS)	Influence of stress upon the structure and function of the amygdale
	MT	Pereira, Mª José (MD)	Nuno Sousa (ICVS)	Ansiolitic effect of propofol in non-sedative doses
	PhD	Pinto-Ribeiro, Filipa	Armando Almeida (ICVS) Nuno Sousa (ICVS)	Anatomical and functional basis for the interaction between stress and chronic (neuropathic) pain
	PhD	Rodrigues, Manuel Lima (MD)	Armando Almeida (ICVS) Rui Nunes (UP)	Sensorimotor innervation of the rat larynx
	PhD(BD)	Silva, Rui	Nuno Sousa (ICVS)	Interventions modulating hippocampal postnatal neurogenesis: structural and functional implications
Development & Neoplasia	MT	Basto, Diana	Rui M. Reis (ICVS)	Molecular alterations predictive of therapy in malignant gliomas

Development & Neoplasia (cont.)	MT	Carvalho, Inês	Fernando Schimtt (IPATIMUP/ICVS)	PDGFR in breast cancer
	PhD(BD)	Costa, Bruno	Rui M. Reis (ICVS)	Study of molecular predictive factors of therapy response and novel therapeutic targets in human gliomas
	PhD(BD)	Costa, Sandra	Fernando Schmitt (IPATIMUP/ICVS)	DNA repair gene polymorphisms in a group of breast cancer patients from portuguese origin
	PhD	Duarte, Fátima	Fernando Schmitt (IPATIMUP /ICVS) Igor Prudovsky (Maine Medical Inst-USA)	Role of FGF in angiogenesis
	PhD(BD)	Reis-Filho, Jorge (MD)	Fernando Schmitt (IPATIMUP /ICVS)	Myoepithelial differentiation in breast carcinomas: pathological recognition and clinical implications
	PhD Stud	Baptista, Maria João (MD)	Jorge Correia-Pinto (UM) J. Carlos Areias (UP)	Cardiopulmonar physiopathology and fetal prognostic factors in congenital diaphragmatic hernia
	PhD(BD)	Gonzaga, Sílvia	Jorge Correia-Pinto (ICVSM) Alan W Flake (Univ. Pennsylvania)	Fetal lung development and new therapeutically approaches in congenital diaphragmatic hernia
	PhD(BD)	Pascoal, Susana	Isabel Palmeirim (ICVS)	New Aspects of the Coordination of Vertebrate Limb Bud Development
	PhD(BD)	Rodrigues, Sofia	Isabel Palmeirim (ICVS)	Molecular and Cellular Characterization of Somitogenesis in Early Chick Development
	PhD(BD)	Santos, Marta	Jorge Correia-Pinto (ICVS) Isabel Palmeirim (ICVS)	Common genetic pathways in lung and limb development: in vivo and in vitro studies
	MT	Santos, Sara	Isabel Palmeirim (ICVS)	Phylogenetic aspects of segmentation in the animal kingdom
	PhD(BD)	Silva, Liliana	Isabel Palmeirim (ICVS) Martin Catalã (Univ. Paris)	Control of the anteroposterior patterning of axis and the somitogenesis processes

PhD (BD) = PhD students with a grant from FCT

PhD = PhD Students with funding from either projects or the ICVS

MT = Master students (thesis research work)

ICVS = Life and Health Research Institute

IPATIMUP = Institute for Molecular Pathology and Immunology, University of Porto

UM = University of Minho

UP = University of Porto.

Other Research Students: Themes and Supervisors

RESEARCH AREA	POSITION	STUDENT	SUPERVISOR(S)	THESIS THEME
Infectious Deseases	BI	Valdigem, Gustavo	Fernando Rodrigues (ICVS)	Molecular and cellular mycology: epidemiology and risk factors
	BTI	Carmona Jenny	Fernando Rodrigues (ICVS)	Cellular and molecular analysis of the cellular division in *Paraccocidioides brasiliensis*
	BI	Oliveira, Rodrigo	Paula Ludovico (ICVS)	Elucidation of the molecular basis of human mitochondrial neuromyopathies associated to citochrome oxidase deficiency: use of *Saccharomyces cerevisiae* as a model
	BI	Mesquita, Ana Mª	Paula Ludovico (ICVS)	Identification and characterization of mycotoxins modulators of host imune system
	BI (IBMC)	Domingues, Sofia	Gil Castro (ICVS)	The immune response to allografts: role of anti-inflammatory cytokines
	BI	Oliveira, Martinha	Jorge Pedrosa (ICVS)	Mycobacteriosis of difficult treatment (Buruli ulcer): Impact in public health
	BI	Fraga, Alexandra	Jorge Pedrosa (ICVS)	Characterization of the immune response following experimental infection by diferent clinical isolates of *Mycobacterium ulcerans*
Neurosciences	BI	Castro, Andreia	Patrícia Maciel (ICVS)	Study of the misfolding response in animal models of Machado-Joseph disease
	BI	Ferreira, Eduardo	Joana Palha (ICVS)	Searching of an essential function for transthyretin in the central nervous system
	BI	Fernandes, Anabela	Patrícia Maciel (ICVS)	Characterization of transgenic mice for Machado-Joseph disease
	Assist.	Bessa-Peixoto, João (MD)	Nuno Sousa (ICVS)	Hippocampal cell turnover and depression
	BI	Carrão, Catarina	Armando Almeida (ICVS)	Multissynaptic pathways implicated in the endogenous pain control system uncovered by the use of transneuronal tracing viruses
	Assist.	Carvalho, André (MD)	Nuno Sousa (ICVS)	Pharmacological interventions modulating the limbic control of the HPA axis: the role of ghrelin

Neurosciences (cont.)	Mon.	Leão, Pedro	Nuno Sousa (ICVS)	The ventral striatum system following chronic stress
	BI	Leite-Almeida, Hugo	Armando Almeida (ICVS)	Role of the medullary dorsal reticular nucleus in the modulation of chronic pain
	Mon.	Oliveira, Mário (MD)	Nuno Sousa (ICVS)	Maternal dexamethasone treatment: neurodevelopmental consequences
	Researcher	Taipa, Ricardo (MD)	Nuno Sousa (ICVS)	
	Assist.	Tavares, Hugo (MD)	Nuno Sousa & Patrícia Maciel (ICVS)	Rett syndrome: enrichment factors
	Researcher	Valle-Fernandes, Ana Lídia	Armando Almeida (ICVS)	Technical assistance in pain reseach
Development & Neoplasia	BI	Martins, Albino	Rui M. Reis (ICVS)	Gene expression profile in the rat intrauterine growth retardation model
	BI	Gomes, Ana	Rui M. Reis (ICVS)	Analysis of c-kit alterations in human tumors
	BI	Ribeiro, Susana	Rui M. Reis (ICVS)	Analysis of c-kit alterations in human glial and breast tumors
	BTI	Ferreira, Mónica	Isabel Palmeirim (ICVS)	Aprendizagem de técnicas de Biologia do Desenvolvimento utilizando a galinha como modelo
	Mon.	Fernandes, João Paulo (MD)	Jorge Correia Pinto (ICVS)	PACAP modulation of fetal lung growth
	Assist.	Gonçalves, Carla Rolanda	Jorge Correia Pinto (ICVS)	The role of ghrelin in short bowel syndrome
	Assist.	Torrão, Luis (MD)	Jorge Correia Pinto (ICVS)	Ocular ghrelin gene expression in fetal and adult rats
	Mon.	Bastos, Pedro (MD)	Jorge Correia Pinto (ICVS)	Ghrelin mRNA gene expression during fetal lung development

Development & Neoplasia (cont.)	Assist.	Magalhães, Sónia (MD)	Jorge Correia Pinto (ICVS)	Cardiac calcium kinetics-related proteins in the pregnant rat
	Mon.	Melo-Rocha, Gustavo (MD)	Jorge Correia Pinto (ICVS)	Cardiac calcium kinetics-related proteins in the pregnant rat
	Mon.	Roriz, José-Mário	Jorge Correia Pinto (ICVS)	Ghrelin mRNA gene expression during fetal lung development

BI – Research grant from either FCT or projects

Assist. – ECS Assistant

Mon. - ECS Monitor

BTI – Technical research grant from projects

ICVS = Life and Health Research Institute

APPENDIX III

List of Researchers and Administratives at the ICVS

1. PhD RESEARCHERS

Name	Qualifications	Rank	Research Area
António Gil Pereira de Castro	PhD	Assist. Professor	Infectious Diseases
Jorge Manuel Rolo Pedrosa	PhD	Assist. Professor	Infectious Diseases
Fernando José Santos Rodrigues	PhD	Assist. Professor	Infectious Diseases
João Pedro Antunes Pereira	PhD	PD	Infectious Diseases
Maria Cecília L. P. Estrela Leão	PhD	Director/Full Professor	Infectious Diseases
Paula Cristina C. A. M. Ludovico	PhD	Assist. Professor	Infectious Diseases
Armando Alberto N. Pinto Almeida	PhD	Assist. Professor	Neurosciences
Joana Almeida S. Pacheco Palha	PhD	Assist. Professor	Neurosciences
Nuno Jorge Carvalho de Sousa	MD/PhD	Assist. Professor	Neurosciences
Patrícia Espinheira de Sá Maciel	PhD	Assist. Professor	Neurosciences
Adhemar Longatto Filho	PhD	PD	Development & Neoplasia
Isabel Mª Palmeirim A. Esteves	MD/PhD	Assist. Professor	Development & Neoplasia
Jorge Manuel Correia Pinto	MD/PhD	Assist. Professor	Development & Neoplasia
Maria de Fátima M. Baltazar	PhD	Assist. Professor	Development & Neoplasia
Raquel G. V. Pêgo de Andrade	PhD	PD	Development & Neoplasia
Rui Manuel Vieira Reis	PhD	Assist. Professor	Development & Neoplasia
Manuel João T. Mendes da Costa	PhD	Assist. Professor	Medical Education

2. POST-GRADUATION RESEARCHERS

2.1 PhD Students

Name	Qualifications	Rank	Research Area
Agostinho Albérico R. Carvalho	Lic.	BD	Infectious Diseases
Agostinho J. R. Almeida	Lic.	BD	Infectious Diseases
Andrea Patrícia Ribeiro da Cruz	Lic.	BD	Infectious Diseases
Bruno Miguel B. R. Almeida	Lic.	BD	Infectious Diseases
Egídio Manuel Pires Torrado	Lic.	BD	Infectious Diseases
Luís André Vale Silva	Lic.	Erasmus Student	Infectious Diseases
Nuno Miguel Sampaio Osório	Lic.	BD	Infectious Diseases
Ana João Gomes Rodrigues	Lic.	BD	Neurosciences
Ana Raquel Marcelino Mesquita	Lic.	BD	Neurosciences
Dina Ruano Neto	Lic.	BD	Neurosciences
Fernanda Cristina G. S. Marques	Lic.	BD	Neurosciences
Filipa Santos Costa Pinto Ribeiro	Lic.	Assistant	Neurosciences
João Carlos Cruz Sousa	Lic.	Monitor/ BD-IBMC	Neurosciences
João José F. Cardoso A. Cerqueira	MD	Assistant	Neurosciences

José M. Gomes Moreira Pêgo	MD	Assistant	Neurosciences
Laurinda Mª S. Guimarães Lemos	MD	PhD student	Neurosciences
Manuel José Lima C. Rodrigues	MD	Assistant	Neurosciences
Maria do Carmo Pereira da Costa	Lic.	BD	Neurosciences
Maria José T. C. Costeira Paulo	MD	PhD student	Neurosciences
Maria Leonor Barbosa Gonçalves	Lic.	Monitor/BD	Neurosciences
Mónica Joana Pinto Santos	Lic.	BD-IBMC	Neurosciences
Rui Jorge de Freitas da Silva	Lic.	BD	Neurosciences
Rui Jorge Marques de Almeida	MD	PhD student	Neurosciences
Bruno Filipe Marques Costa	Lic.	BD	Development & Neoplasia
Jorge Sérgio Reis Filho	MD	BD	Development & Neoplasia
Liliana Alexandra Osório Silva	Lic.	BD	Development & Neoplasia
Maria de Fátima Pereira Duarte	Lic.	PhD student	Development & Neoplasia
Maria João Ribeiro Leite Baptista	MD	Assistant	Development & Neoplasia
Marta Alexandra Ribeiro Santos	Lic.	BD	Development & Neoplasia
Sandra Maria Araújo da Costa	Lic.	BD	Development & Neoplasia
Sílvia Gonzaga da Silva Santos	Lic.	BD	Development & Neoplasia
Sofia Machado da Cruz Cristóvão	Lic.	BD	Development & Neoplasia
Susana Alexandra R. Pascoal	Lic.	BD	Development & Neoplasia

2.2 Master Students

Name	Qualifications	Rank	Research Area
Margarida Isabel B. C. Martins	Lic	MT	Infectious Diseases
Rodrigo Emanuel G. L. Oliveira	Lic.	BI	Infectious Diseases
Lira Carvalho Folgado Lessa	Lic.	MT	Neurosciences
Maria José Barros Pereira	MD	MT	Neurosciences
Diana Sofia Sá Carneiro G. Basto	Lic.	MT	Development & Neoplasia
Inês Carvalho	Lic.	MT	Development & Neoplasia
Sara Isabel Rodrigues dos Santos	Lic.	BI	Development & Neoplasia

2.3 Researchers with Graduation

Name	Qualifications	Rank	Research Area
Alexandra Gabriel Fraga	Lic.	BI	Infectious Diseases
Ana Maria Macedo Mesquita	Lic.	BI	Infectious Diseases
Gustavo Leão Valdigem	Lic.	BI	Infectious Diseases
Helena Sofia de A. Domingues	Lic.	BI-IBMC	Infectious Diseases
Jenny Andrea Carmona Valência	Lic.	BTI	Infectious Diseases
Martinha Soares Oliveira	Lic.	BI	Infectious Diseases

Ana Catarina Ribeiro Carrão	BI	Lic.	Neurosciences
Ana Lídia F. M. Valle Fernandes	Lic.	Researcher	Neurosciences
Anabela Silva Fernandes	Lic.	BI	Neurosciences
André Filipe Couto Carvalho	MD	Assistant	Neurosciences
Andreia Cristiana T. de Castro	Lic.	BI	Neurosciences
Eduardo Miguel G. Ferreira	Lic.	BI	Neurosciences
Hugo Miguel Braga A. Tavares	MD	Assistant	Neurosciences
Hugo Miguel Vale L. S. Almeida	Lic.	BI	Neurosciences
João Miguel Seiça Bessa Peixoto	MD	Assistant	Neurosciences
Mário Jorge Alves Oliveira	MD	Monitor	Neurosciences
Pedro Alexandre L. A. G. Teixeira	MD	Monitor	Neurosciences
Ricardo Jorge Ferreira Taipa	MD	Researcher	Neurosciences
Albino Manuel Pereira Martins	Lic.	BI	Development & Neoplasia
Ana Lúcia Silva Gomes	Lic.	BI	Development & Neoplasia
Carla Rolanda da Rocha Gonçalves	MD	Assistant	Development & Neoplasia
Gustavo Filipe Melo A. Rocha	MD	Monitor	Development & Neoplasia
João Paulo S. Fernandes	MD	Monitor	Development & Neoplasia
José Mário Coutinho Roriz	MD	Monitor	Development & Neoplasia
Luís Miguel Gonçalves Torrão	MD	Assistant	Development & Neoplasia
Maria Fernanda Grillo Milanezi	MD	Assistant	Development & Neoplasia
Maria Susana G. Abreu Ribeiro	Lic.	BI	Development & Neoplasia
Rui Pedro da Rocha Bastos	MD	Monitor	Development & Neoplasia
Sandra Mónica B. A. Ferreira	Lic.	BTI	Development & Neoplasia
Sónia Manuela R. Magalhães	MD	Assistant	Development & Neoplasia

PD = Post-doctoral researcher

Lic. = "Licenciatura"

MD = Medical degree

BD = PhD students with a gran from FCT

BI = Research grant from either FCT or projects

BTI = Technical research grant from projects

MT = Master thesis students

4. ADMINISTRATIVE STAFF
(Common to the ECS and ICVS)

Name	Qualifications	Rank	Service
José Carlos da F. Henriques	Lic.	Executive Director	Support to the ICVS
Direction			
Mª Manuela Marques Mendes	Sec. School	Administ. Assistant	Academic Center
Domingos F. Dias	Sec. School	Assist. Comp. Technician	Computer Support Center
Paula Carla F. Gomes Pereira	Lic.	2nd class Sup. Technician	Human Resources Center
Cláudia M. B. Barreira	Lic.	Prob. Sup. Technician	Patrimony & Financial Center
Mª Paulina D. Martins Santos	Lic.	2nd class Sup. Technician	Projects Support Center
Ana Cristina M. R. Taboada	Lic.	2nd class Sup. Technician	Laboratories
Isabel Alexandra de M. Dias	MD	Veterinarian	Laboratories
João Filipe Almeida Malheiro	Sec.School	Technical Assistant	Laboratories
Jorge Manuel S. Gonçalves Paula	Sec. School	Technical Assistant	Laboratories
Lucília Goreti Ribeiro Pinto	Lic.	2nd class Sup.Technician	Laboratories
Luís Filipe Forte Oliveira Martins	Bach.	2nd class Technician	Laboratories
Magda João Castelhano Carlos	Lic.	2nd class Sup.Technician	Laboratories
Maria Celina Ferreira Barros	Sec.School	Supporting Assistant	Laboratories
Maria Manuela dos S. Carneiro	Sec.School	Supporting Assistant	Laboratories
Susana Isabel Vaz dos Santos	Sec.School	Technical Assistant	Laboratories
Ana Cristina Ferraz Freitas	Lic.	2nd class Sup.Technician	Medical Education Unit
Ana P. Salgueira Rodrigues	Lic.	2nd class Sup.Technician	Medical Education Unit
Isabel Mª Vieites Barbosa	Sec.School	Administ.. Assistant	Medical Education Unit
Jorge Manuel A. Freitas	Bach.	Computer Specialist	Medical Education Unit
Catarina Nazaré S. Freitas	Sec.School	Administrative Assistant	Secretarial staff
Helena Mª Alves do Nascimento	Sec.School	Administrative Assistant	Secretarial staff
Olga Mª S. Miranda Abreu	Sec.School	Spec.Administ. Assistant	Secretarial staff