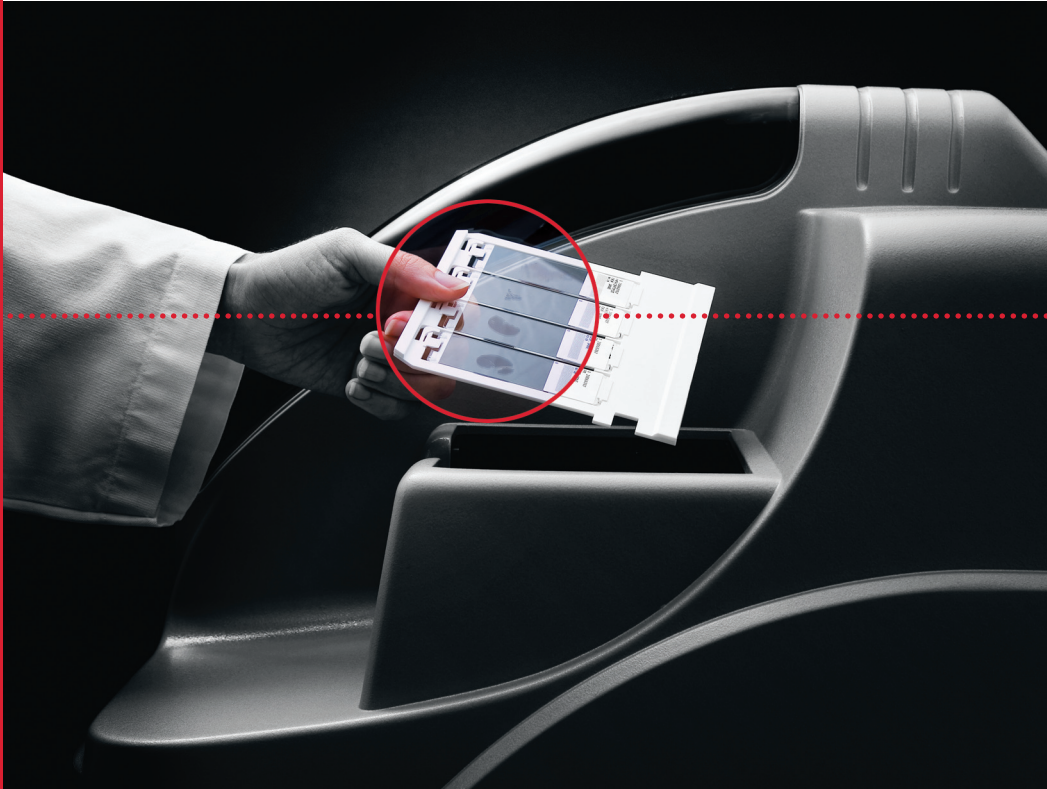


## Image Analysis in Routine Clinical Diagnostics



**9th European Congress on Telepathology and  
3rd International Congress on Virtual Microscopy**

15 May 2008

*Let's connect.*



## Image Analysis in Routine Clinical Diagnostics

15 May 2008

12:30 - 13:30

Room 2, Salón Guadalajara

Hotel Beatriz Toledo

Carretera Ávila. Km 2,750

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## Introduction

Pathology laboratories are undergoing significant changes. They are developing fast to meet the ever-increasing demands of an aging population and skyrocketing healthcare costs. Automation and laboratory information systems (LIS) have improved laboratory productivity by overcoming the limitations of manual procedures. They have also provided better patient care by improving the diagnostic accuracy and consistency of laboratory results.

Dako continues to build resources to integrate and connect your laboratory's workflow. Over the years, we have developed our expertise in cancer diagnosis and broadened our perspective to improve workflow in the pathology laboratory by offering:

- High-quality reagents and ready-to-use kits that offer a full range of clinically relevant products to increase consistency
- Integrated solutions that automate and streamline as many manual steps as possible to speed up and standardize your slide processing
- Software connectivity that enables you to keep track of patient data from biopsy to microscopic observation as well as share information within and outside your laboratory

## Visit Dako Booth #32

## Program

### Image Analysis in Routine Clinical Diagnostics

12:30 Welcome and Opening Address

*Dr. Marcial García Rojo, Ciudad Real, Spain*

12:35 Pathology Workflow and Integration of ACIS® III in Dako Link

*Dr. Joachim Schmid, Director, Imaging & Pathology Workflow,  
Dako, North America*

13:00 Use of ACIS® III in Daily Use to Support Breast Panel Diagnosis

*Dr. Fernando A. Soares, Hospital A C Camargo, Sao Paulo, Brazil*

13:25 Discussion and Closing

*Dr. Marcial García Rojo, Ciudad Real, Spain*

Lunch will be served during the session.



## Welcome and Opening Address

### Dr. Marcial García Rojo

#### Curriculum Vitae

Dr. Marcial García Rojo is a staff Pathologist and Coordinator of Information Systems at Hospital General de Ciudad Real, Ciudad Real, Spain. He was born in Oviedo, Asturias, Spain. He received his Master's Degree in Computer Science (1992-1994), M.D. (1987) from the Universidad de Cadiz, Cadiz, and a Ph.D. (1995) from Universidad Autónoma, Madrid. He attended the Pathology Residency Program in pathology at Hospital La Paz, from 1988 to 1991.

Dr. García Rojo is a member of the Council of the Spanish Society of Health Informatics, Webmaster of the Spanish Society of Pathology, Editor of the Spanish Journal of Pathology (Revista Española de Patología), and the past-President of Internet Association for Biomedical Sciences (INABIS).

Dr. García Rojo's main research areas are medical informatics, immunohistochemistry and molecular pathology. He is the chair of the European project EURO-TELEPATH, Anatomic Telepathology Network, Action IC0604 of the European Cooperation in the field of Scientific and Technical Research (COST). He is also a main researcher of the project "Regional telepathology network for prevention of cancer," granted by Health Research Foundation in Castilla-La Mancha (FISCAM). In addition, he is also a medical coordinator (stakeholder) of the regional project on digital pathology of the Health Services of Castilla-la Mancha (SESCAM), "Serendipia" project, aimed to create a regional pathology information system and telepathology services connecting fully digitized pathology departments of 15 public hospitals in Castilla-La Mancha.

- The 9th European Congress on Telepathology and 3rd International Congress on Virtual Microscopy organizing committee thanks Dako for including this very interesting symposium with lecturers from two well-known experts in the field of image analysis and information integration.

This symposium on Image Analysis in Routine Clinical Diagnosis focuses on two challenges that pathology departments face today: automation in pathology and quality of diagnosis.

Dr. Schmid's presentation on "Pathology Workflow and Integration of ACIS® III in Dako Link" covers practical issues related to automation and workflow optimization with a novel approach emphasizing data and information integration.

Dr. Soares' lecture on the "Use of ACIS III to Support the Breast Panel Diagnosis" is a practical example on how image analysis technology is used today in the daily workflow of pathology departments.



## Pathology Workflow and Integration of ACIS III in Dako Link

### Dr. Joachim Schmid

#### Curriculum Vitae

Dr. Ing. Joachim Schmid  
Director, Imaging & Pathology Workflow, Dako, North America

Dr. Schmid joined Dako in June 2006 as Principal Scientist, Image Analysis. Since the beginning of 2008, he has been the Director of the Imaging and Pathology Workflow group at Dako North America, Inc. Carpinteria, California.

Prior to joining Dako, Dr. Schmid worked for seven years in R&D at Tripath Imaging. He was the Director for Imaging and developed new products for cytology, IHC quantification, telepathology and image management. He received his doctorate in electrical engineering from the University of Stuttgart, Germany. During this time, he worked on a new telepathology system and participated in the European Union research project EUROPATH.

- Dr. Schmid's presentation, "Pathology Workflow and Integration of ACIS® III in Dako Link," presents practical issues related to automation and workflow optimization in pathology, introducing a novel approach that emphasizes data and information integration for image analysis. This presentation is of special interest today for anyone interested in how imaging can be integrated in pathology workflow. International standardization organizations (such as DICOM, HL7, IHE) are developing standards in collaboration with the industry and pathologists to enable the communication between different information systems.



## Use of ACIS® III in Daily Use to Support Breast Panel Diagnosis

### Dr. Fernando A. Soares

#### Curriculum Vitae

Dr. Fernando Soares is Full Professor at University of São Paulo, São Paulo, Brazil. He also serves as Head of the Department of Anatomic Pathology and Head of Translational Research of the Research and Medical Hospital A.C. Camargo, São Paulo, Brazil.

He received his M.D. degree from Faculty of Medicine at Santos in 1980, and completed a residency in Pathology at University of State of São Paulo, Botucatu, Brazil. Following that, Dr. Soares moved to the University of São Paulo at Ribeirão Preto as a Teaching Assistant in Pathology from 1984 to 1989 when he received his Ph.D. degree, becoming Assistant Professor of Pathology at the same University. He was Visiting Professor at McMaster University at Hamilton, ON, Canada from 1991 to 1993. In 1997, he became Head of the Department of Anatomic Pathology at Hospital A.C. Camargo and in 2004, he received the title of Full Professor.

Dr. Soares' main research expertise is in translational pathology with emphasis in biomarkers in diagnosis and prognosis of the tumors. His clinical expertise is in surgical pathology with emphasis in hematopathology. He is a senior investigator in several grants which have resulted in more than 120 peer-reviewed scientific papers in international journals. Dr. Soares is also Associate Editor of the upcoming Journal of Hematopathology and former President of the Brazilian Society of Pathology.

- Immunohistochemistry (IHC) provides great value in diagnostic surgical pathology. Diagnostic, prognostic and therapeutic decisions are made based on tumor marker expression, and IHC is the easiest way to make these determinations. In the last ten years, several targeted therapies have been developed for cancer treatment. The main objective is to improve treatment effectiveness in selected cancer patients based in certain selection criteria, e.g. over-expression or amplification of biomarkers such as HER2/neu. In this talk, I will emphasize the importance of standardization in the process of tumor marker expression in breast carcinoma.

IHC results from different laboratories continue to demonstrate inconsistent quality, in spite of all the efforts from the scientific community. It is therefore important, that standardization of all steps in the IHC process, such as specimen acquisition and fixation, antibody optimization and validation, and interpretation & reporting are taken into consideration to make informed decisions in a consistent and meaningful manner. Laboratory automation



can also play an important role in IHC standardization of IHC results, as it makes the job not only convenient but also improves the turnaround time.

Invasive breast cancer is the most common carcinoma in women, accounting for 22% of all female cancers. One million women worldwide are diagnosed with breast cancer every year, and its incidence increases rapidly with age. The common IHC protocols for breast cancer, practically in all laboratories of the world include hormone receptors and HER2 expression.

The reporting of the IHC results varies according the pathologist. Depending on the severity, it can also affect the patient's treatment. Although IHC has been a common method for measuring hormone receptor status for over 18 years, it remains unstandardized. There is a widespread concern that inaccuracy in IHC technique and interpretation is leading to an unacceptably high error rate in determining the true hormone receptor status. Similarly, there is also considerable concern that both false-negative and false-positive results for HER2 status are unacceptably high in current clinical practice. Therefore, there is a great need for the standardization of these biomarker assay procedures to further enable the highest possible quality of care for newly diagnosed breast cancer patients. The use of an image analysis system can improve the standardization of the results, validated by other methods. The use of the ACIS® III for hormone receptors and HER-2/neu analysis correlates well with biochemical/biomolecular analysis (for HR) and FISH (for HER-2/neu analysis) and has higher accuracy than the manual method. The ACIS® III method represents a substantial improvement over the manual method for objective evaluation of the HER-2/neu status.





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