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Action IC0604

Telepathology Network in Europe: EURO-TELEPATH

Participating countries: CH, CY, DE, ES, FI, FR, GR, HR, IT, LT, NL, NO, PL, PT, RS, UK
Chair of the Action: Marcial García Rojo, ES, marcial@cim.es
COST Science Officer: Gian Mario Maggio, gmmaggio@cost.esf.org

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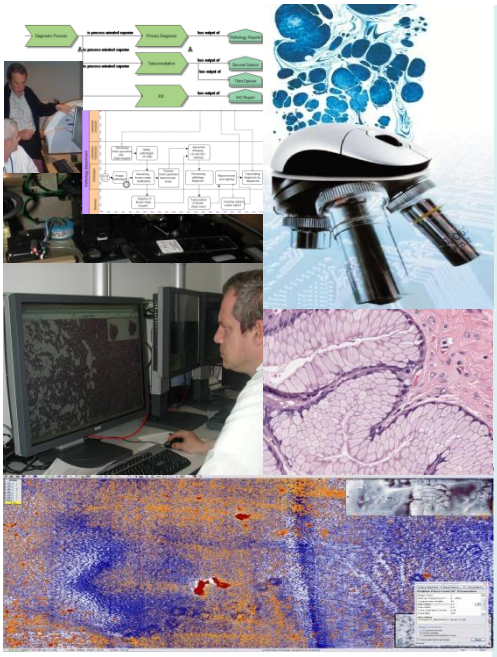

Figure 1: Business modelling and virtual slides. Emerging Technologies.

Working Group 1. Pathology Business Modelling

This group is working in the scientific program activities of the COST Action IC0604 related to artificial intelligence for classification studies, clinical evaluation, proposal on changes in pathology information systems, and telepathology integration guidelines. One of our main achievements is the development of a general business process model in pathology to analyze and specify the requirements of integration of telepathology in routine diagnostic process, education, research, and quality control activities. WG1 meetings and STSMs allowed us a fruitful study of comparison notations and pathology processes, mainly using BPMN, EPC and UML AD. We concluded that BPMN is the modelling notation which is clearer and more understandable to pathologists.

Working Group 2. Informatics Standards in Pathology

An essential part of the work in COST Action IC0604 is promoting the participation of European institutions in the existing and emerging pathology informatics standardization bodies, mainly DICOM, HL7, IHE, SNOMED, and CEN.
Two integration profiles part of the Integrating the Healthcare Enterprise (IHE) Anatomic Pathology Technical framework have already been tested by collaborating companies in international platforms of interoperability tests (called “IHE Connectathons”), and in both cases they have been successful to receive integration statement certification. Collaboration with DICOM, JPEG, IHTSDO standardisation bodies have also been fruitful.

Working Group 3. Images: Analysis, Processing, Retrieval and Management

Scientific and technical activities related to images are covered by this group: compression and storage, image viewer, Image analysis, and compiling cases.
An important part of our activity (training school, STSMs, WGs meetings) is focused on image processing and analysis. Different image analysis methods that can be performed in static pictures and virtual slides need a consensus. The comparative studies performed by the group on the quantitative automatic and semiquantitative light microscopy methods used for the immunoreactive cells recognition is the first step in the validation of the automatic quantification in immunohistochemistry of the digital pathology (virtual slide - based diagnostics).

Working Group 4. Technology and Automation in Pathology

Knowledge research in automation and scanning solutions in Pathology.
In collaboration with European companies, we have reviewed existing scanning systems, some of them under development by companies. Also, virtual slide viewers and upcoming related projects about managing large pathology images have been studied.

Objectives:

- Increase the use of automation procedures over 50% in Anatomic Pathology.
- Increase productivity. Reach up to 100 slides digitization per day.
- Norms and compression rules to obtain microscopic images with full diagnostic quality in minimum possible space (1-2 GB).
- Best viewer design based on standardized (JPEG2000) format for microscopic pathology images.
- Define a set of standardized DICOM file headings for pathology microscopic images.
- Definition of new types of messages needed for pathological image information exchange (CEN, HL7, and other standards).
- Increase the European scientific leadership in the emerging Pathology Technical Framework (IHE-Pathology).
- Research in Pathology Information Systems and other hospital information systems to integrate a standardized workflow of pathology images.
- Agree on methodology to establish an open, web-based European teleconsultation service based on virtual slides.
- Design a central metasearch engine containing a +3500 virtual database of pathology images for joint research, teaching and observation purposes.

Main Achievements:

- COST Action IC0604 “EURO-TELEPATH“ is been disseminated in main European Medical Informatics and Pathology meetings (European Congress of Medical Informatics, Sarajevo) and technical meetings (DICOM, IHE, IHTSDO meetings).
- Working groups definition and task has arisen great interest in related European research teams, mainly those working in Image Analysis and Processing. These groups agree that Pathology field problems are a new compelling challenge.
- EURO-TELEPATH is already know by main European digital pathology companies . We are collaborating with some of theses companies in the development of new products