**Contemplating the Future of Pathology and Laboratory Medicine**

**WASPaLM and IFCC to Build a Closer Cooperation**

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There are major structural risks for pathology and laboratory medicine. These disciplines may be viewed by university committees primarily as service units so that university chairs may no longer be guaranteed. Required activities to overcome these risks are scientific innovations in the field of pathology and laboratory medicine, the development and rapid integration of new molecular and genetic analyses into laboratory diagnostics, and the development of appropriate multidisciplinary networks to promote personalized medicine.

Economic and social pressure is causing increasing competition between disciplines for diagnostic areas, funds for equipment and personnel, grants and research projects. These pressures are also causing rapid changes in healthcare systems and university structures. External change demands internal change. Jared Schwartz recently stated in CAP (College of American Pathologists) Today: “The circumstances in our environment, the pace of innovation, and the extraordinary flood of new technologies – these factors are driving out transformation.”

Our disciplines should take a leading role in the introduction and validation of sophisticated technologies, which are increasingly used in laboratory medicine, and will also gain importance for molecular pathology in the future. These include mass spectrometry platforms for proteomics research, for steroid profiling and therapeutic drug monitoring. Genome technologies such as gene chip platforms or next generation sequencing are further examples.

Developments in the field of diagnostic molecular pathology have great potential. Integration of genomics and proteomics is necessary to elucidate protein functions as they relate to pathogenesis. This field holds great promise regarding the discovery of novel useful biomarkers.

In the vast field of genomics, genome-wide approaches include gene expression profiles or markers from association studies. Circulating nucleic acids have been proposed as markers in the staging of some chronic illnesses and for prenatal diagnoses such as the informative detection of fetal trisomy 2. Another exciting research field involves microRNAs, which opens up new diagnostic opportunities. Proteome analysis is a powerful tool to investigate biomarkers of disease, antigens from pathogens, drug target proteins, and posttranslational modifications. Biomarkers may also play a greater role in the future for cancer staging, grading, and selection of therapy. The addition of individual or pattern-based biomarkers in the assessment of histological grade could increase the utility of grading for predicting response to therapy. It is essential that biomarker candidates undergo careful clinical validation. Proteomics holds great promise in providing new sensitive tools for early detection of neoplasms, assessment of tumor malignancy, and the discovery of novel drug-target proteins and biomarkers of diseases. Molecular diagnostics including cytogenetics will be helpful to improve further difficult diagnostic and management pathways.

To translate, however, the promise into reality from bench to bedside is the real challenge and a task for laboratory physicians and pathologists.

Laboratory medicine is currently undergoing a rapid concentration process in Europe in form of either partnerships or core laboratories with satellites. As a result, market shares of private laboratory chains increase. The market shares of private laboratory chains in Germany have reached about 30% to 40%. So far, there seems to be no relevant shortage of young laboratory physicians. However, the loss of training positions at hospitals is worrying. In the future, it will be important to enhance the role of pathologists and laboratory medicine physicians as physician leaders in medicine. It is important to ensure multidisciplinary cooperation to develop best practices for new and old technologies, to improve harmonization in education and to preserve independent university departments with funded chairs for pathology and laboratory medicine to provide high quality education, practice, and research. Furthermore, stronger bridges should be built between our professional societies on a national and international level. The World Association of Pathology and Laboratory Medicine (WASPaLM) is a network of our professional societies that creates global opportunities for cooperation in education, research, practice, and commerce. WASPaLM and the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC), the two international sister societies, are looking into a closer cooperation and have signed a memorandum of understanding. All such activities will be helpful to strengthen the position of our disciplines in the future.