



Introduction into the subject “BioChips in medical diagnostics”

Since the first heart beats of Molecular Biology could be detected, this new discipline was always good at initiating and developing revolutionary methods resulting in a knowledge explosion unthinkable just a few decades ago. The development of Molecular Biology rivals that of the computer revolution including information technologies. Robotics, microfluidic systems and nanostructures, three other scientific blockbusters, are now joining to form a science super league to produce products collectively coined BioChips. BioChips, similar to microchips, are miniaturised high throughput analytical devices harbouring a ,probe'-microarray like nuclear acid arrays (e.g. DNA chips), protein arrays, tissue arrays or microfluidic networks suitable for separation techniques, PCR reactions or even multistep chemical reactions. These devices are already starting to be used in clinical laboratories and will have a tremendous impact on new diagnostic tools for genotyping or drug monitoring. With the advent of advanced genotyping tools, sequence collection and collation allows a pharmacogenetic approach to correlate genetic profiles

with therapeutic drug responses. With this impressive and exiting deployment of BioChips ready to invade molecular diagnostics a continuous and critical monitoring of these methodologies is urgently needed.

This morning session, although only a glimpse of the field of BioChips with important implications to medical diagnostics, will start with a critical introduction into genetic testing followed by prominent representatives of current R&D in BioChips with a gradual move from a currently more research based to ready to use BioChips. During the break there will be reasonable time for informal discussions. We have the privilege to witness or even be a part of today's and upcoming BioChips use and developments.

Dr. A. Rühlmann