Cell morphology, character, function and interaction with other cells are established and predominantly determined by their architectonic organization, i.e. the cytoskeleton in both normal and pathological states, in situ and in cell culture. In particular, our studies focuses on the structural and molecular elements forming cytoplasmic filament systems, notably microfilament bundles as well as intermediate-sized filaments, and their specific anchorage structures, the dense plaques located on the cytoplasmic sides of cell-cell junctions (primarily adhering cell-cell junctions). We are extending and completing our analyses of the major constituent molecules of cell type-specific junctions using biochemical and immunological methods, including chemical cross-linking as well as high-resolution immunofluorescence and immunoelectron microscopy. In 2014 we nearly completed our analyses of the constituent molecules of the “composite junctions” in myocardial intercalated disks, mutations of which have been found worldwide to be responsible for arrhythmogenic cardiomyopathies that oftentimes result in “sudden death”. We have also evaluated the diagnostic value of these molecules for tumor cell typing, notably for the identification of the specific primary tumor of a given metastatic tumor. In another project we have identified, characterized and immunocytochemically visualized a specific category of structure-determining protein, the lipid droplet surrounding protein cortex formed by type-specific molecules, which now provides another kind of immunocytochemical diagnostic reagent.

**FUTURE OUTLOOK:**
Ongoing and future work aims at completing the analyses of cell type-specific molecules of cell-cell junctions and lipid cortices, as well as a new category of cell-cell junctions, the tessellate junctions.

**SELECTED PUBLICATIONS:**