SUMMARY

This thesis is a collection of commentaries on altogether 13 first-authored and 20 co-authored publications where morphology, immunohistochemistry (IHC) and molecular genetic methods were used to provide novel clues for arriving at an accurate diagnosis of tumors, as well as to propose novel approaches and refinement of classification of certain tumors. The presented manuscripts are the result of the postgraduate studies of MUDr. Michael Michal at the Charles University in Prague, Faculty of Medicine in Pilsen in the period between 2015-2018. The author focused the main part of his research, particularly his first-authored manuscripts, on soft tissue tumors but also largely participated in research activities focusing on other body systems. Over the course of his studies, four main areas of interests within the topic of soft tissue pathology emerged.

The first is oriented on soft tissue tumors of presumed (but unconfirmed) fibroblastic lineage. First two publications regard two related low-grade sarcomas called Myxoinflammatory fibroblastic sarcoma (MIFS) and Pleomorphic hyalinizing angiectatic tumor (PHAT). In the first manuscript, a high-grade variant of the former is described. The latter publication is focused on the morphological and IHC similarities between both MIFS and PHAT. The third and very recent publication describes 4 novel cases of an emerging entity provisionally called acral fibroblastic spindle cell neoplasm with *EWSR1-SMAD3* fusion. Only one previous report of this tumor has been published, and our contribution thus helps to further characterize this apparently very rare tumor.

The second group of publications concerns tumors of the peripheral nerve sheath origin. Overall three papers from this area are presented. One reports on a novel, so far undescribed morphological feature of a plexiform neurofibroma. Other presents a special, highly cellular variant of perineurioma which may be easily mistaken for monophasic fibrous synovial sarcoma. The last manuscript is a review of hybrid peripheral nerve sheath tumor pathology.

The third part concerns peculiar histiocytic proliferations. Although most of them do not primarily affect soft tissue structures, since they may be easily mistaken for a carcinoma and occur over a wide anatomic range, they are often signed out by the soft tissue pathologists. As mentioned, they occur in many different organs and tissues and in most of them they bear a different name. We proposed a unifying concept and a common name for all these lesions and also studied their expression of various IHC markers.

The fourth area of interest are tumors of adipose tissue which became the center of the author's research in one larger paper and two letters to the editor. First paper scrutinized the relatively common lipomatous tumor called spindle cell/pleomorphic lipoma for the presence of lipoblasts. Since general pathologists often consider the presence of lipoblasts as an important feature for rendering the diagnosis of liposarcoma, their presence in spindle cell/pleomorphic lipoma, a benign mimic of liposarcoma, may lead to overdiagnosis. The first letter to the editor reports another worrisome and commonly present feature of spindle cell/pleomorphic lipoma – the occurrence of atypical mitosis. The latter letter to the editor is a reply to a comment made by another group of investigators in a reaction to our studies of spindle cell/pleomorphic lipoma.

Due to a large number of co-authored manuscripts, their summary was omitted, and they will be introduced only at the particular section of the thesis.