Expression of pro-apoptotic Bcl-2 family members Bax and Bak in canine lymphoma – A tissue array-based immunohistochemical study

Summary / Zusammenfassung
Deregulated apoptosis plays a crucial role in the development and maintenance of cancer. The Bcl-2 family of proteins plays a central role in the control of the intrinsic apoptotic pathway. These proteins control the integrity of the outer mitochondrial membrane, which depends from the balance between the pro-apoptotic (comprising 2 subtypes, the complete pro-apoptotic members and the BH3-only members) and the anti-apoptotic family members. Apoptosis through the intrinsic apoptotic pathway is enabled when the complete pro-apoptotic members Bax or Bak are activated. As a consequence, pores are formed in the outer mitochondrial membrane and cytochrome c flows into the cytoplasm and contributes to the activation of caspases, the executioners of apoptosis. Anti-apoptotic members such as Bcl-2 counteract the effect of the complete pro-apoptotic members. The BH3-only members act as sensors for pro-apoptotic signals and interfere in the balance between anti-apoptotic and complete pro-apoptotic Bcl-2 molecules.

The aim of this project is to investigate the expression of the complete pro-apoptotic Bcl-2 family members Bax and Bak in canine lymphoma tissues. Commercially available antibodies cross-reacting with the canine proteins are selected using previously generated canine recombinant proteins and are used to establish immunohistochemical protocols. The protocols are validated by Western blotting of cultured cells and normal tissues. The relative expression of Bax and Bak is assessed using tissue array containing canine normal tissues and a panel of different canine lymphoma subtypes. This investigation will provide a basis to identify tumors potentially susceptible to treatment with inhibitors of the anti-apoptotic Bcl-2 family proteins.

Publications / Publikationen

Keywords / Suchbegriffe
intrinsic apoptotic pathway, tissue arrays, immunohistochemistry, canine lymphoma

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