Bfk, a Novel Member of the Bcl2 Gene Family, Is Highly Expressed in Principal Cells of the Mouse Epididymis and Demonstrates a Predominant Nuclear Localization

B-cell lymphoma 2 (BCL2) family kin (BFK) is a recently identified novel protein that is similar to proteins of the BCL2 family. In the present study, we discovered that the mouse Bfk transcript is expressed at the highest level in the epididymis. Two transcripts of 0.9 and 2.6 kb in size were identified, with alternative exon 4 structures, resulting in a difference in the last three to five amino acids of the variants. However, the 0.9-kb transcript was found to be the predominant form in the epididymis and mammary gland, another tissue with strong Bfk expression. Epididymal Bfk expression was regulated both by androgens and other testicular factors. It is thus one of the few initial-segment enriched genes under androgen control, the majority of them being regulated by other testicular factors. BFK protein was expressed specifically in the principal cells of the epididymis. Its nuclear localization was evident in the initial segment and caput epididymis and in the epithelium of pregnant female mammary gland. The expression of BFK-enhanced green fluorescent protein recombinant protein in epididymal cells further confirmed the predominant nuclear localization of BFK with nucleo-cytoplasmic shuttling. Overexpressing BFK in epididymal cells did not induce apoptosis. However, enhanced caspase 3 activation was observed in the presence of BFK upon staurosporine-induced apoptosis. This suggests that BFK may have a proapoptotic role only after the process has been initiated by other mechanisms. Being exceptionally highly expressed in the initial segment, Bfk is suggested to have a role in the differentiation of this segment of the epididymis.