Anti-Fas/CD95 and tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) differentially regulate apoptosis in normal and neoplastic human basophils

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Basophilia is associated with allergic and parasitic diseases and advanced chronic myeloid leukemia. In the present study, we characterized the expression and function of the death receptors Fas/CD95 and tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) receptors in basophils from healthy donors compared to neoplastic basophils. Peripheral blood basophils obtained from healthy donors (HD-PBB) and from patients with chronic myeloid leukemia (CML-PBB) were found to express high levels of Fas/CD95 and low levels of TRAIL-R2, whereas the basophil-like chronic myeloid leukemia cell line KU-812 expressed significant levels of TRAIL-R1 and TRAIL-R2. HD-PBB underwent apoptosis in response to anti-Fas/CD95, but showed resistance to TRAIL, unless they were co-treated with actinomycin D. Interestingly, CML-PBB and KU-812 cells exhibited the opposite response pattern with resistance to anti-Fas/CD95, but significant susceptibility to TRAIL-induced apoptosis. Our data show that anti-Fas/CD95 and TRAIL differentially regulate apoptosis of normal and neoplastic human basophils, which may direct the development of novel therapeutic strategies.
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