E2F1 acetylation regulates apoptosis of perifocal region cells after photothrombotic stroke

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We studied the interaction of E2F1 with different isoforms of histone acetyltransferases in neurons of the perifocal region at 4 and 24 hours after photothrombotic stroke (PTS) in rats. Photothrombotic stroke (PTS) was induced in the rat cortex after intravenous injection of photosensitizer Rose Bengal (20 mg/kg), followed by laser irradiation of the sensorimotor cortex (532 nm, 60 mW/cm^2, Ø3 mm, 30 min). PTS caused increased E2F1 acetylation as early as 24 h and even 4 h after irradiation of rat brain. Immunofluorescence microscopy, Duolink® proximity ligation assay (PLA®) and co-immunoprecipitation showed the interaction of E2F1 with histone acetyltransferase PCAF (p300/CBP-associated), also known as KAT2B. To evaluate whether this transcription factor promotes cell apoptosis, we examined the effect of pharmacological inhibition of E2F activity by HLM006474 (100 mg/kg, intraperitoneally) following PTS. A high level of E2F1 acetylation was in apoptotically proficient cells. It has been shown that E2F1 acetylation increases the stability and proapoptotic activity of E2F1 in the perifocal region neurons.

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