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Analysis of PDGF-AB and -BB in serum of intact and ovariectomized (OVX) pigs

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Previous studies in our group demonstrated that terminal microvascular networks in dura mater of ovariectomized (OVX) pigs undergo significant remodeling characterized by a decrease in microvessel density, capillary rarefaction, and increase in blood vessel permeability. It was postulated that post OVX vascular remodeling is estrogen-dependent and could involve changes in expression levels of relevant growth factors and receptors on both systemic and local levels. Comparison of 41 relevant growth factors and receptors in serum of intact female and OVX animals using antibody array revealed most robust changes in the expression levels of platelet-derived growth factors (PDGF) -AB and -BB, both of which are potent regulators of growth and survival in a vascular tissue. To corroborate the data from the antibody array, we conducted SDS-Page and Western blot analysis using monoclonal antibody directed against B chain of PDGF, which recognizes both PDGF-AB and PDGF-BB. The Western blot analysis revealed several species of PDGF-AB and BB possibly existing in porcine serum, notably p24, p36 and p54, which are consistent with differing stages of posttranslational processing and maturation of PDGF. Densitometry analysis confirmed antibody array results showing significant decrease in PDGF-AB and PDGF-BB expression levels in post OVX animals compared to intact female swine. Our ongoing experiments aim at isolating and verifying specific bands, and analysis of the expression levels and autophosphorylation of PDGF receptors alpha and beta in different vascular compartments.