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Title:	Arsenic and 17- β -estradiol bind to each other and neutralize each other's signaling effects
Authors:	Kumar, Sukhdeep (/jspui/browse?type=author&value=Kumar%2C+Sukhdeep) Guptasarma, P. (/jspui/browse?type=author&value=Guptasarma%2C+P.)
Keywords:	Arsenic Estrogen Endocrinology Reproduction
Issue Date:	2016
Publisher:	Elsevier
Citation:	Biochemical and Biophysical Research Communications, 477(4),pp. 575-580.
Abstract:	We report that arsenic trioxide (ATO) and 17-beta-estradiol (E2) abolish each other's independent cell signaling effects in respect of cell survival and proliferation/migration of breast cancer (MCF-7) cells. The possibility that this is due to binding of ATO to E2 was confirmed through difference absorption spectroscopy, chromatography-coupled voltammetry and 1-D 1H and 13C NMR spectroscopy. Binding leads to attenuation of E2's hydroxyl 1H peaks at its C17 and C3 carbon positions. The results suggest that ATO and E2 can titrate each other's levels, potentially explaining why sustained arsenic exposure tends to be associated with delays in age of menarche, advanced age of menopause, poorer sperm quality, higher overall morbidity in men, and lower incidences of breast cancer in women in some arsenic-contaminated areas.
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