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Series GSE30174
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Status	Public on Dec 21, 2012
Title	Molecular-genetic correlates of fatigue in cancer patients receiving localized external beam radiation therapy
Organism	Homo sapiens
Experiment type	Expression profiling by array
Summary	<p>The etiology behind cancer-related fatigue (CRF) is currently unknown. The physiological mechanisms of CRF are based on limited evidence that genetic factors, energy expenditure, metabolism, aerobic capacity, and the individual's immune response to inflammation are responsible for the experience of CRF. Gene expression profiling using microarray analysis from white blood cells of men with non-metastatic prostate cancer shows significant, differential expression of 463 probesets during localized external beam radiation therapy (EBRT). Pathway analysis shows a central role of SNCA (alpha-synuclein gene) among these differentially expressed probesets. Significant expression of SNCA was confirmed by qPCR ($p < .001$) and ELISA ($p < .001$) over time during EBRT. A significant correlation was noted between averaged fatigue scores and delta CT values of SNCA expression using confirmatory qPCR over time during EBRT ($R = -.90$, $p = .006$). Development of fatigue experienced by these men during EBRT may be mediated by SNCA expression. Pathways related to alpha-synuclein may serve as useful biomarkers to understand the mechanisms behind the development of fatigue.</p>
Overall design	<p>A longitudinal design exploring the association between changes in gene expression and fatigue symptoms of men with non-metastatic prostate cancer receiving external beam radiation therapy. Blood samples were collected from ten subjects at 7 timepoints for microarray analysis: baseline (before EBRT); days 1, 7, 14, 21, 42 of EBRT; and 30 days post-EBRT. Baseline data obtained from subjects were compared to data obtained from age-, race-, and gender-matched healthy controls.</p>
Contributor(s)	Saligan LN , Barb J , Munson P , Hsiao C , Wang X , Wang D , Kaushal A , Citrin D , Dionne R
Citation(s)	<p>Saligan LN, Hsiao CP, Wang D, Wang XM et al. Upregulation of α-synuclein during localized radiation therapy signals the association of cancer-related fatigue with the activation of inflammatory and neuroprotective pathways. <i>Brain Behav Immun</i> 2013 Jan;27(1):63-70. PMID: 23022913</p>
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Last update date	Mar 20, 2015
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Samples (80)

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