**Transcriptome response to high-altitude exercise in Andean Highlanders with Chronic Mountain Sickness before and after hemodilution**

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Chronic Mountain Sickness(CMS), a disease common among highlanders, is characterized by excessive erythrocytosis and hypoxemia. While little is known about pathways leading to CMS, hemodilution has been anecdotally reported to alleviate CMS symptoms. To better understand the transcriptomic profile of CMS and the impact of isovolemic hemodilution, we collected blood samples before and after VO2max exercise from Andean male highlanders (~4300m) with (n=6) and without (n=8) CMS (pre- and post-hemodilution). Differentially expressed genes were selected based on transcriptomic differences in each group. Upregulation of inflammatory pathways (Neuroinflammation,IL-8,Natural Killer Cell),Cardiac Hypertrophy, and Cdc42signaling were noted among CMS subjects before hemodilution, including changes in *IRAK3,HMOX1,IFNGR2,and IL6R* genes. The upregulation of these pathways detected in CMS subjects shifted to a pattern more similar to control subjects after hemodilution.