**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 usually categorized by excessive production of red blood cells, pulmonary hypertension, and exercise intolerance. Hemodilution, or “Bloodletting”, has been anecdotally reported to alleviate CMS symptoms. To understand the pathogenesis of CMS and the underlying biological mechanism of hemodilution, we collected blood samples for RNAseq from Andean male highlanders (~4300 m) with (n = 6) and without (n = 8) CMS before and after acute VO2max exercise. Subjects with CMS repeated the exercise protocol after treated by isovolemic hemodilution. Significantly differentially expressed genes were selected based on transcriptomic differences in exercise responses in CMS, CMS hemodiluted and healthy subjects. From the selected genes, Ingenuity Pathway Analysis suggested upregulation of various inflammation and pulmonary hypertrophy pathways in CMS subjects. The pathway regulation pattern of CMS hemodiluted subjects were more similar to that of healthy subjects.