

Genetic and seasonal determinants of vitamin D status in Confederated Salish and Kootenai Tribes (CSKT) participants



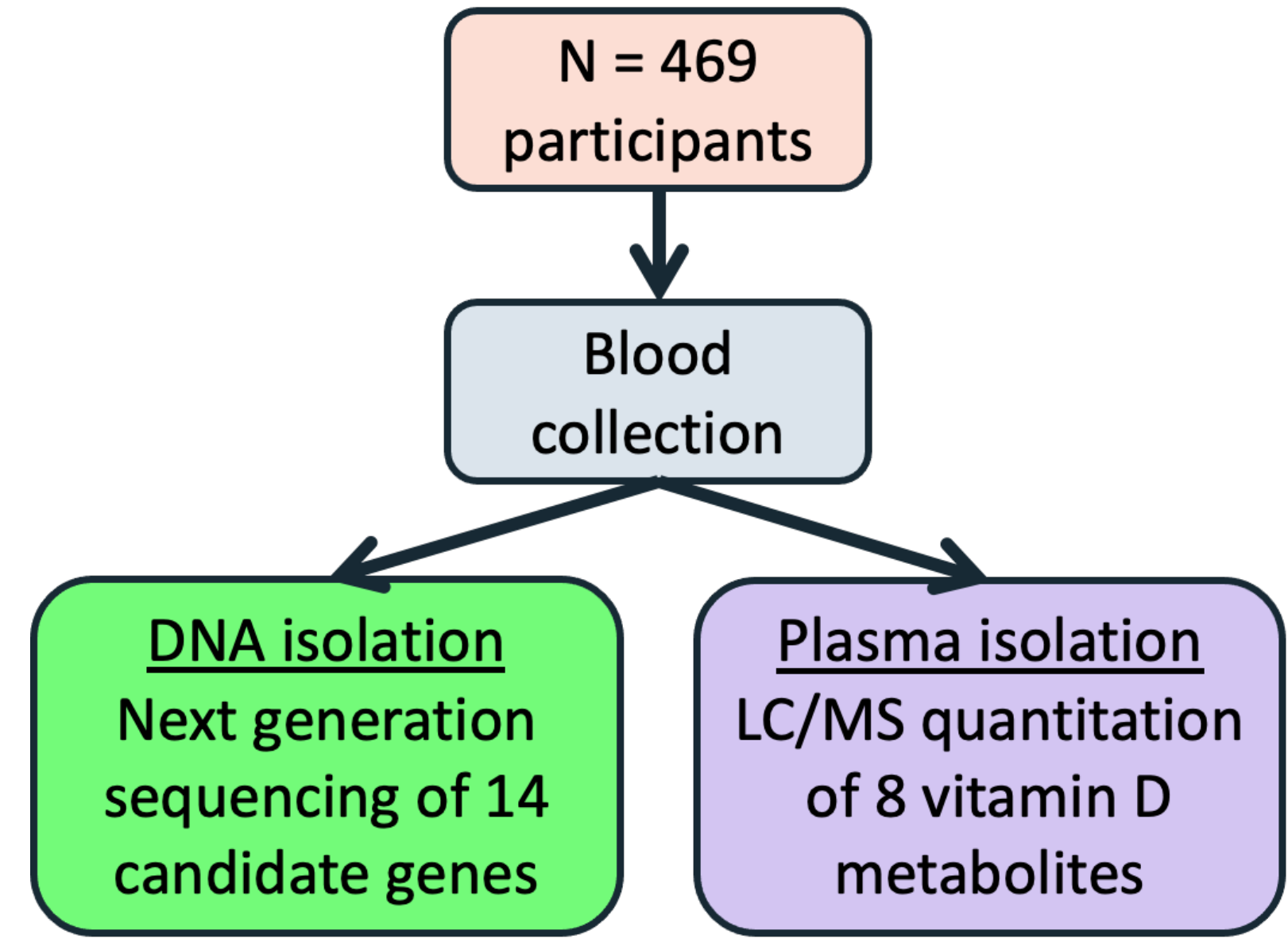
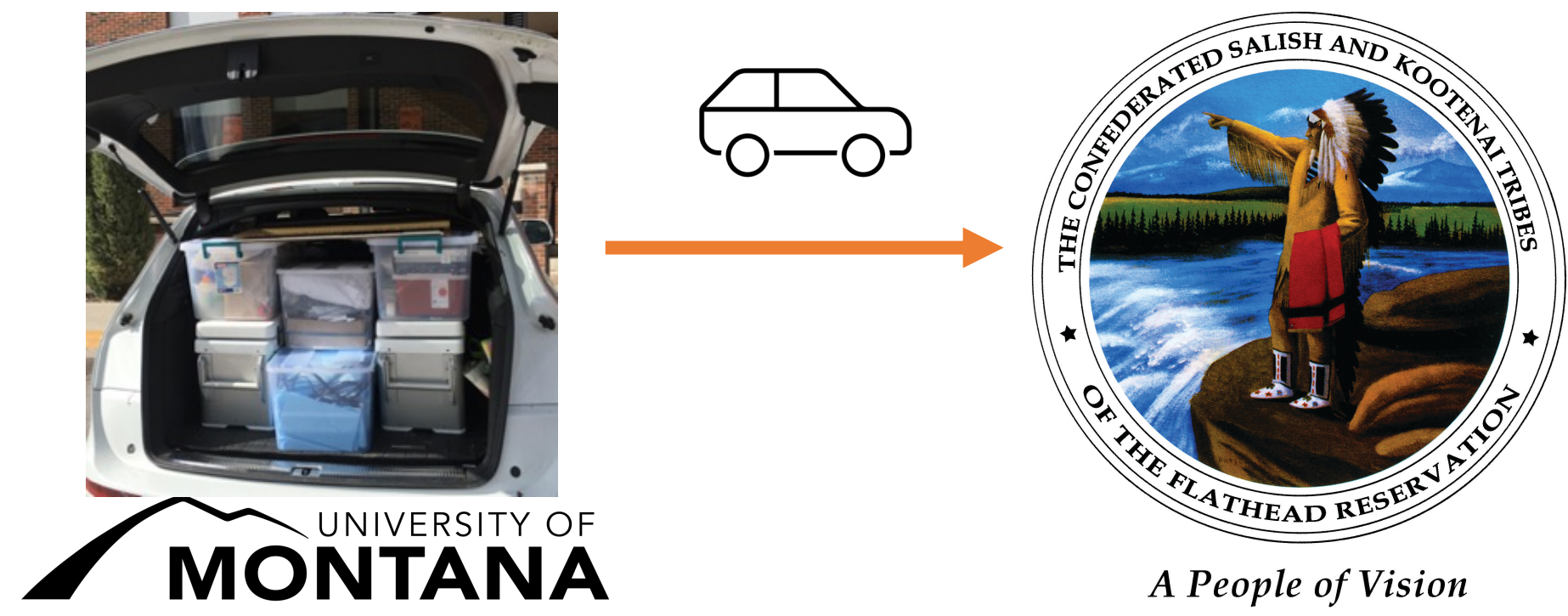
PRESENTER:

Jack Staples ✉

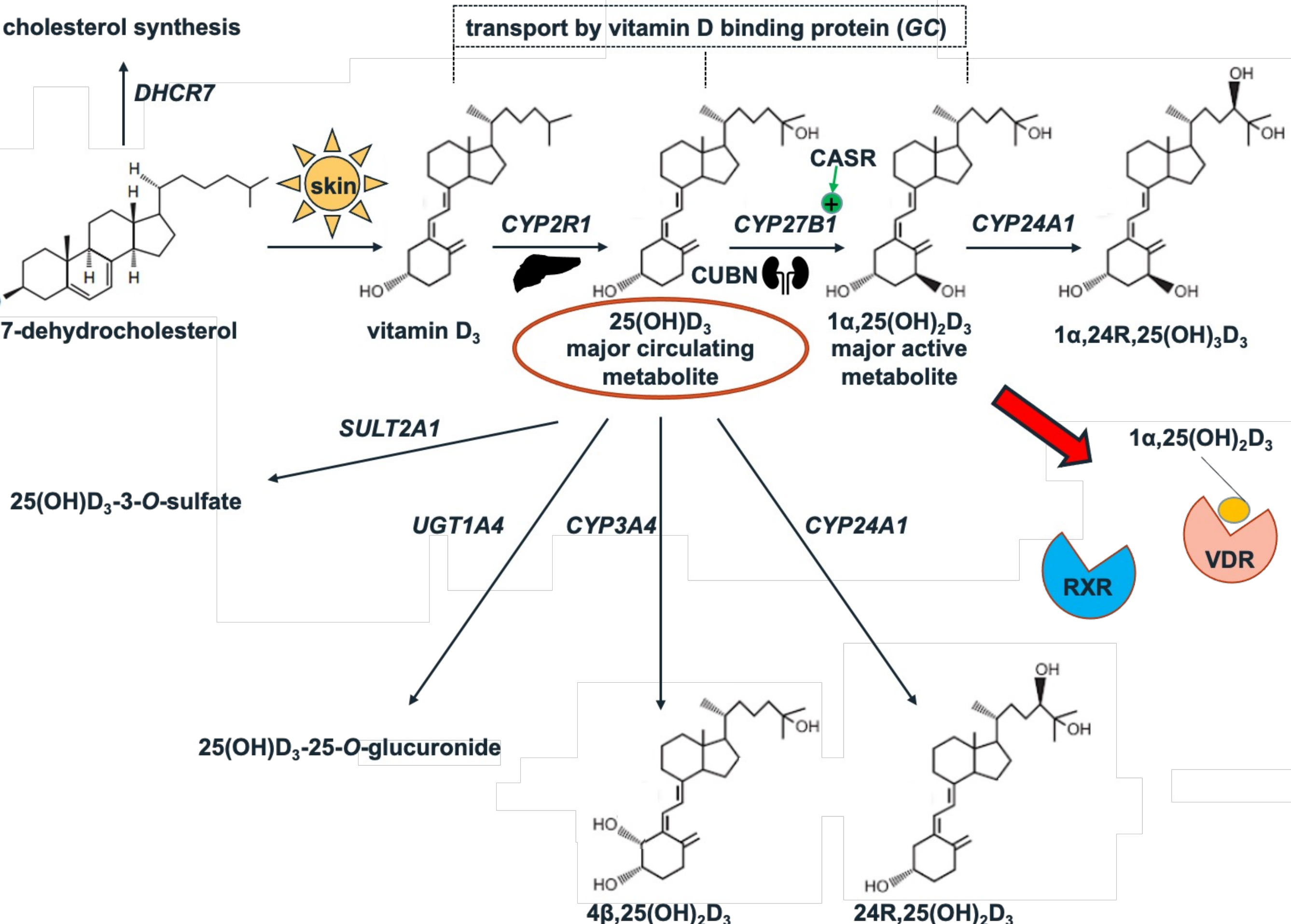
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Background: Vitamin D levels vary globally in human populations due to genetics, geography, and other demographic factors (e.g., age, BMI, and gender). To improve our understanding of contributors to vitamin D levels, we conducted a candidate-gene study in partnership with the CSKT.

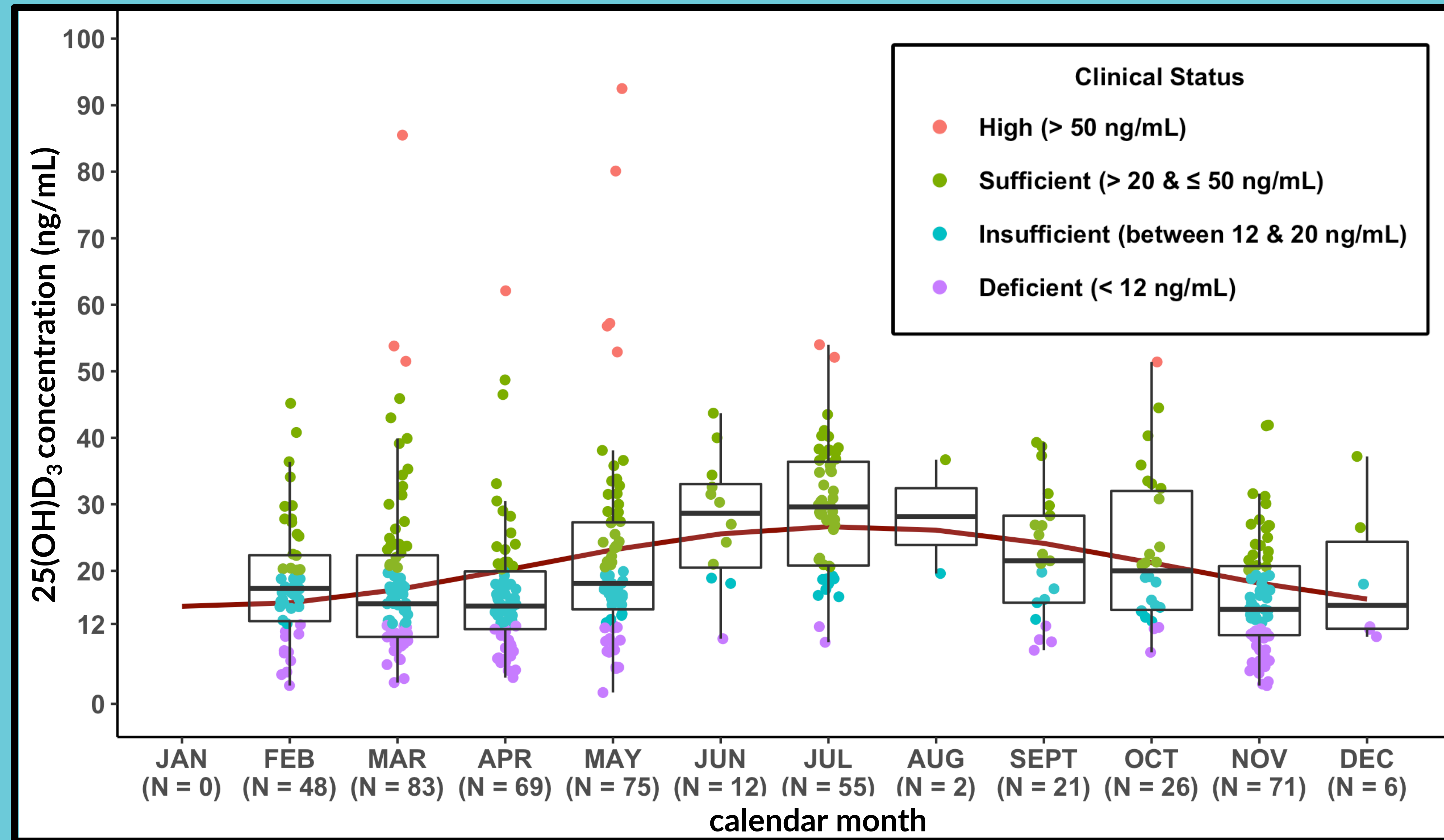
Methods: Our team traveled over 5,000 total miles to conduct this study.



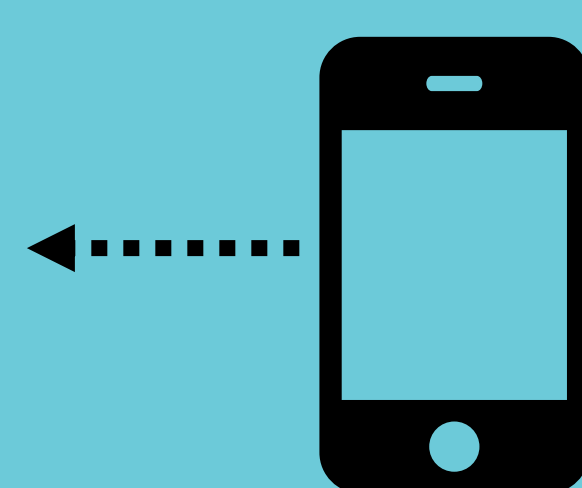
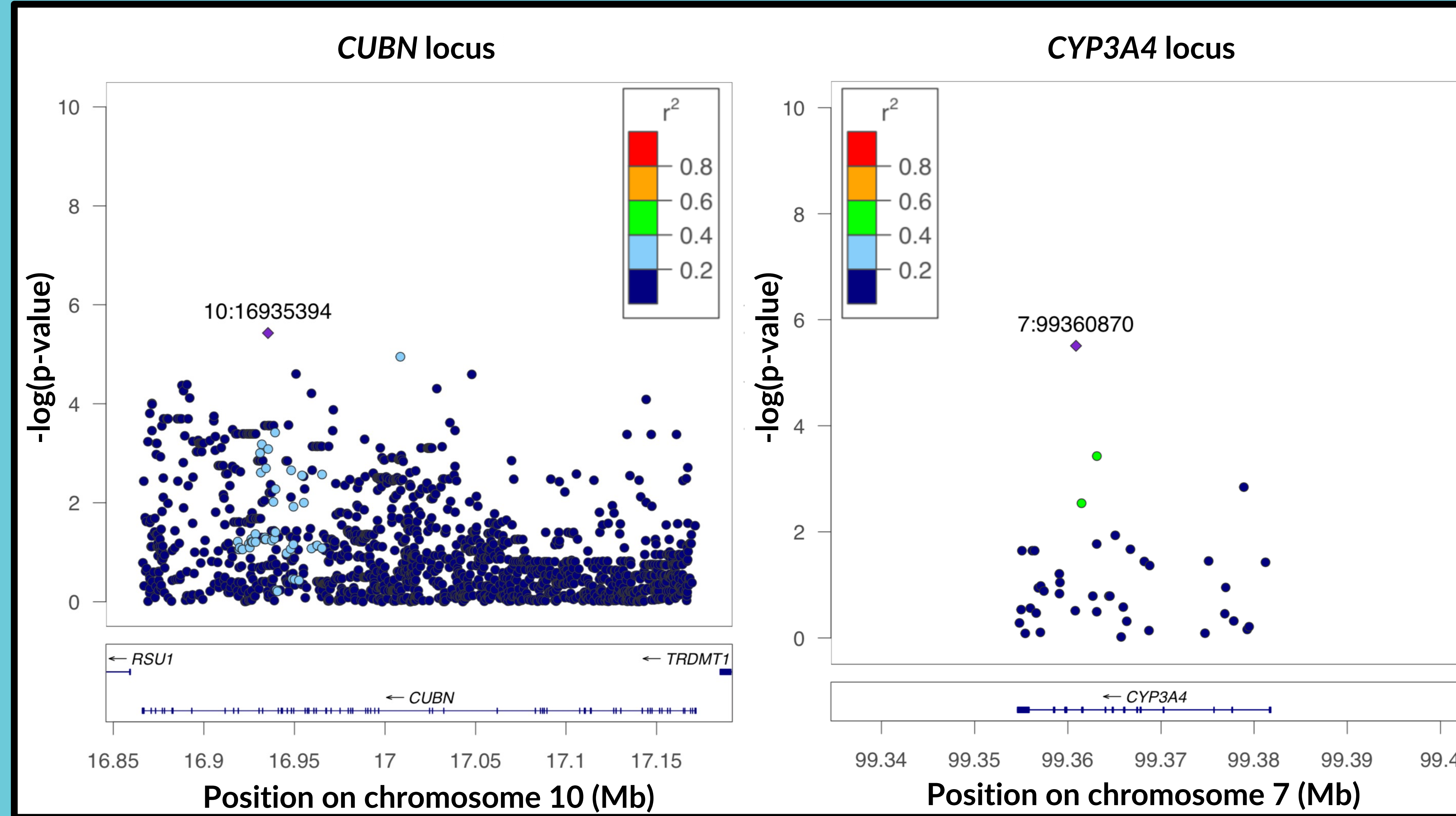
Vitamin D₃ regulatory pathway:



55% of CSKT had vitamin D levels below sufficiency



4 variants in CUBN and 1 variant in CYP3A4 were significantly associated with 25(OH)D₃ concentration



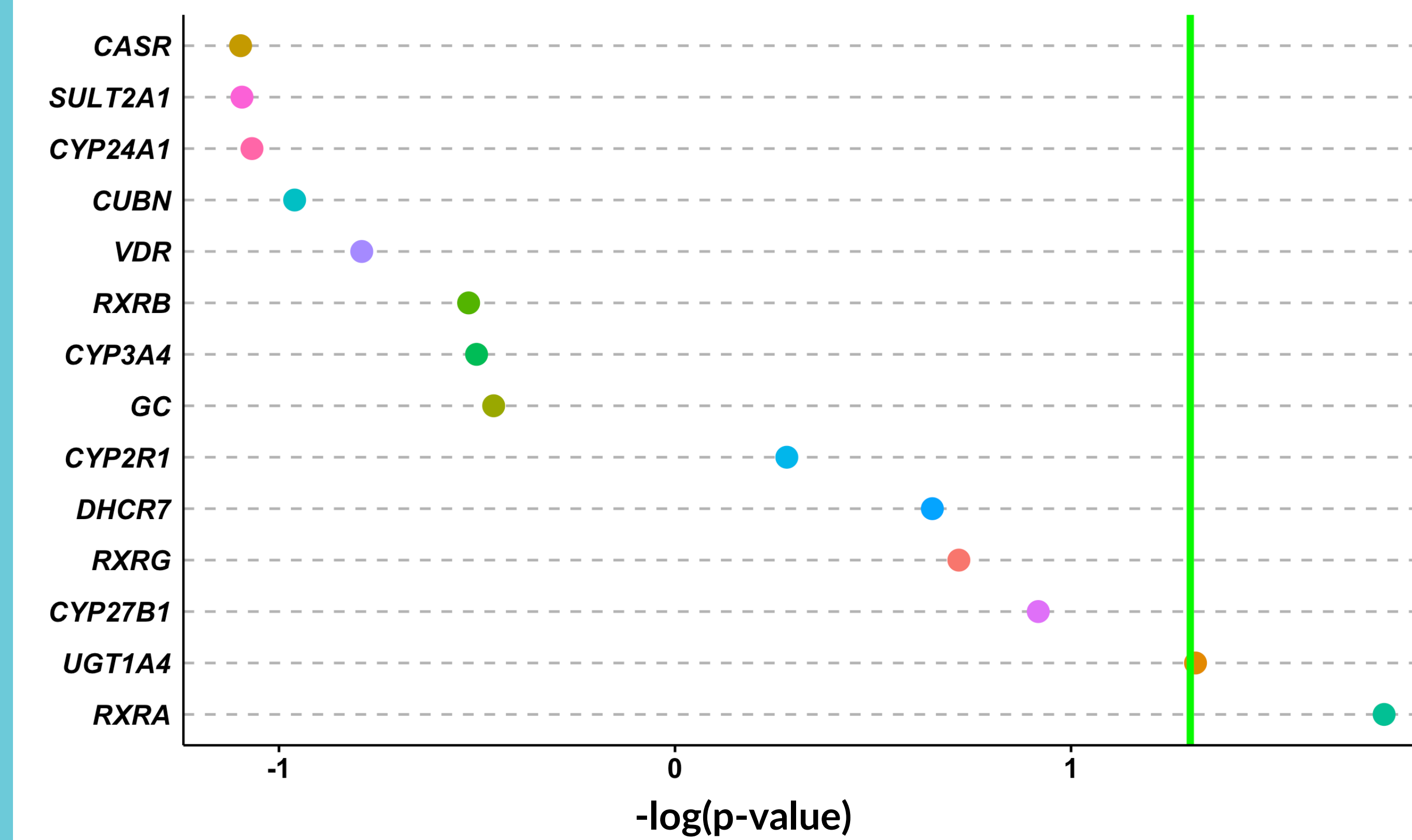
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Multivariate regression:
23% of 25(OH)D₃ variability explained

Variant or covariate	Beta ± S.E.	P-value
rs59819645 (<i>CUBN</i>)	-3.94 ± 1.08	0.000307***
rs7089377 (<i>CUBN</i>)	-2.42 ± 0.696	0.00056***
rs34859798 (<i>CUBN</i>)	1.72 ± 0.951	0.0713
rs77520345 (<i>CUBN</i>)	7.34 ± 2.54	0.00398**
rs4646440 (<i>CUBN</i>)	-3.28 ± 0.728	8.33e-06***
Gender = Male	-2.01 ± 0.966	0.0385*
Age	0.104 ± 0.0391	0.00844**
BMI	-0.239 ± 0.0734	0.00125**
Season = Sept.-Nov.	-8.5 ± 1.48	1.63e-08***
Season = Dec.-Feb.	-10.3 ± 1.7	3.24e-09***
Season = Mar.-May	-9.72 ± 1.44	4.63e-11***

*p < 0.05, **p < 0.01, ***p < 0.001

Pooled rare variant analysis of 25(OH)D sufficiency: significant associations in *UGT1A* and *RXRA* loci



Acknowledgements:

We thank the CSKT research participants who graciously volunteered their time.

This work is supported by the Northwest-Alaska Pharmacogenomics Research Network (P01GM116691) and the American Indian and Alaska Native Clinical and Translational Research Program (U54GM115371).



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