**WHAT IF WE HAD A GOOGLE MAP OF THE HUMAN VASCULATURE**
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Advances in biomedical knowledge and technologies, including genetics, imaging, and big data analysis and computational tools are increasing our ability to aim for precision medicine. The building of a multidimensional, multiscale map of all human tissues that can incorporate and explain the normal variations due to sex, age, ethnicity, across the lifespan and health-disease continuum will enable the generation and testing of new biomedical hypotheses, and as a consequence the development and testing of personalized interventions. A new NIH Common Fund Initiative called the Human Biomolecular Atlas Program (HuBMAP) https://commonfund.nih.gov/hubmap is leveraging the many global emerging advances to build an integrated “Google Map” for the human body with single cell resolution. Because the vasculature is delivering needed nutrients, cellular, and molecular signals, and integrates across tissues and the whole body, human vasculature could be perceived as the road map for the “Google” body map. In fact, physicians already use clinical vascular maps to localize anatomical structures, diagnose conditions, plan, and perform therapeutic procedures. The precision of such interventions will be enabled by a yet to be built, detailed, integrated multiscale vascular map that can account for the structural, anatomical, and functional contributions of the vascular component to any tissue or organ. We will discuss key contributions that mapping the vasculature will make to the overall success of the human body mapping efforts and precision medicine.