

More details on Google's Baseline human health project

Science is the study of comparisons. Measure the response of a control group to one who got treatment: What's different? Find one population that was exposed to chemical Y and one who wasn't: Are they the same? What about five years later?

So when Google X's Baseline project was first reported to include only people with no health conditions, it was big news. Studying a combination of genes, proteins, gut bacteria and a slew of other biomarkers, and bringing to bear the formidable computing power that is Google, it seemed that [understanding human health perfection was the goal, from Alistair Barr at Wall Street Journal](#):

The study may, for instance, reveal a biomarker that helps some people break down fatty foods efficiently, helping them live a long time without high cholesterol and heart disease. Others may lack this trait and succumb to early heart attacks. Once Baseline has identified the biomarker, researchers could check if other people lack it and help them modify their behavior or develop a new treatment to help them break down fatty foods better.

But how will you know what you've found if you don't compare it? And how would this be different than the human genome project, or large-scale studies underway to map the body's proteins and gut microflora? It would take a Google X Magic Department to find perfection without considering comparisons. And, in somewhat characteristic fashion, Google wasn't saying much about the details.

[Faye Flam at MIT's Knight Science Journalism Tracker points to this line of inquiry](#) in her post on the blog and highlighted a story from [Science](#) that dug a little deeper into experimental methods:

[At Science, Jocelyn Kaiser](#) acknowledges the sense of déjà vu for those who have followed human genomics over the last couple of decades. So in her story, Google X sets out to define health human, she focused on the important question of how the Google genome would be different.

[Kaiser found a Baseline collaborator](#) who was willing to give more information about the study:

The study hopes to recruit 10,000 volunteers over 2 to 3 years from Palo Alto and the communities of Durham and Kannapolis in North Carolina. Participants will be tested for their genome sequence, blood proteins, and biochemical or so-called metabolomic profiles; in some cases, these data may eventually be combined with their electronic health records. Some participants will be healthy; others will have disease. The goal is to tease out new biomarkers that can detect diseases such as cancer and heart attacks earlier.

As [Flam](#) and [GLP's own Kenrick Vezina](#) point out, the project is terribly ambitious given the complexity of disease and the natural variation in any population when it comes to their genetics, microbiome and

protein expression. Frankly, the idea that there is one baseline biological pattern at all seems unlikely. Perhaps there are a thousand. Regardless, it's an extremely exciting project. Hopefully Google will be more communicative about what it finds than it was about what it's looking for.

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Additional Resources:

[Google wants to define health using Big Data](#), Genetic Literacy Project

[Google's new Moonshot Project: the Human Body](#), Wall Street Journal

[Google wants to create a map of what a healthy human body looks like](#), i09