



Ben Denzer  
*60,000 IMMORTAL INDIVIDUALS*  
Mixed-media book, [Catalog Press](#), 2021  
Each page 14 x 4.25 inches

The artist spoke recently at Oxford with Esther Becker, Angeliki Kerasidou, and Christopher Fletcher. Their recorded conversation is available online [here](#).

When asked to participate in the ArtHx Project, Ben Denzer graciously agreed and offered further context for their work. The response has been lightly edited for clarity and is reproduced here—

All the data in the book comes from the [Cellosaurus](#). From their site:

The Cellosaurus is a knowledge resource on cell lines. It attempts to describe all cell lines used in biomedical research.

This resource was developed at the SIB - Swiss Institute of Bioinformatics as part of the neXtProt project.

I became interested in human cell lines after talking to scientists during my residency at the [Broad Institute](#). Human cell lines are used in many aspects of research, and it was fascinating to me that people have bits of themselves which "live on" and in a sense they are "immortal" or "immortalized" in this particular way (as long as scientists keep the

fridges plugged in. . .). After doing some digging, the Cellosaurus seemed like the best resource cataloging public records of human cell lines.

The Cellosaurus contains information for most widely used cell lines (but this "widely" is not totally definable). From talking to the people who manage the database, it sounds like there are probably just as many cell lines not described by the Cellosaurus as there are within the database. This is because pharmaceutical companies create cell lines that are never described in a publication nor distributed outside of their companies, and there are also cell lines used internally by academic labs which do not contribute much to publications, and so information on these cell lines aren't published. The Cellosaurus database is essentially a scraping together of information about cell line collections around the world in an attempt to create a resource where most of that information is in one place, but it will never be 100% complete.

The records of information about each individual are very flattened. Cell lines are anonymized, but there are some examples where identities are publicly known (more on this below). The Cellosaurus logs the information that often accompanies each cell line: the age of the individual when the cells were sampled, the tissue of origin, the disease information if the individual had a disease, the sex, and the "population" information, along with a few other descriptors such as cell line name, synonyms, and some other ways of listing disease information, etc. Not every cell line has all this information.

Of the 60,000 individuals in the book, 21,723 of them have something listed in this "population" category. While working with the people who compile the Cellosaurus, I asked about some of these descriptors as I was going through the data and putting together the page. The Cellosaurus team described how

The whole concept of "population" or "ethnicity" is fraught with contradictions, ethical issues and loose definitions.

I was trying to understand some of these "population" descriptors—for example what was meant when an individual was listed as "Caucasian"—and the Cellosaurus team replied:

Some cell collections will say the donor is "white", some other will state "European" and many other will say "Caucasian". In some cases they will report the country of origin.

(These quotes are pulled from some of my emails with them.)

Essentially, the information/words used to describe each cell line comes from the initial way it was cataloged and described by whatever lab or cell collection it came from. As a compiler of multiple different collections and data entries, the Cellosaurus are currently trying to grapple with the ways terms, labels, standards, etc., have changed over time and have been used differently in different locations and contexts. I need to do more research on this myself, but I think there are now some sort of generally accepted guidelines/best practices for categories/terms to be used when describing new cell lines.

However, in terms of retrofitting data entries in a database like this, it seems like a tricky problem partially because all this information is anonymized and so whatever information was logged when the samples were collected is all people have to go off of.

As I mentioned earlier, most (basically all) human cell lines are anonymized. However there are specific cases where individuals are known. Are you familiar with [Henrietta Lacks](#)? There has been much [written about](#) her and her cells. Her story is definitely relevant to the Art Hx database.

In *60,000 IMMORTAL INDIVIDUALS*, I highlight these known individuals with little pink pages containing each individual's name. These small pages are placed into the spiral binding directly opposite the individual's entry. Part of my intent in doing this is to call out specific known stories like Henrietta Lacks, and part is to make people realize that every single entry *is* a person who has a story, even if we don't know their name.

Separate from the specific language used, I think one aspect of having race/ethnicity descriptors is the ability to see how diverse and inclusive a database of biological materials is. This seems to be something scientific organizations and governments are actively working to improve. While not about cell lines in particular, the [All of Us program](#) from the NIH is something I've heard talked about at the Broad and comes to mind. Essentially, scientists want as much data as possible, and they want that data to be representative and inclusive of the entire population.

—Ben Denzer, e-mail to Bhavani Srinivas, April 2021. Joseph Litts, editor.