Host intro: Scientists are our modern day explorers… they populate lab benches, fume hoods, and field sites all over the world. And many times, their curiosity isn't confined to just their work. Their inventiveness can spill over into all sorts of domains. Here's reporter Ari Daniel.

Ari: This is Small Matters – the audio series where we sweat the little things. I'm Ari Daniel.

This is a story about a guy – a scientist, actually – whose hunger to create and experience things in the world – across a dizzying scale of proportions – is as charming as it is insatiable.

The guy is Al Padwa.

Ari tape: May I ask how old you are?

Padwa: How old do you think I am? Well, I'm older than 70.

Ari: Let's start with his human-sized creations.

Padwa: Sitting out here as the welcoming committee.

Ari: Near the front door of his home, he points to a pair of figures that come up to my waist. They're two little people that he's welded together from bits of rusty metal. Little rusted creatures stand guard all over the yard. Back behind the house, Padwa's got a pile of corroded parts he's picked up at junkyards across town.

Padwa: Well, just a whole bunch of different things. You got big bolts. Some of them, you have no idea what the hell that thing was used for. <add some more metal clanking>

Ari tape: You kinda like bringing things into being.

Padwa: This is really the fun – you have to see something there that nobody else sees.

<sliding door>

Ari: Inside his backyard shop, Padwa's creations go one notch smaller, where he makes his mobiles – suspensions of objects…

Padwa: Sometimes you have balls, or little pieces of glass.

Ari: … that he sets twirling and balancing on wire. And he spends a lot of time in here.

Padwa: Well, if I'm not dating a nice gal on a Saturday, and I don't have anything going on, I can spend three, four hours playing around. Whenever the juices flow, you know.

Ari: Padwa's creative juices tend to flow fairly frequently, actually. Just enter his office, only a couple miles away, at Emory University. He's got maybe 70 mobiles suspended overhead – some he's made, some that he's collected. And it's like magic, being underneath all that imagination.

Padwa: This world of ceiling dwellers.

Ari tape: You've got one up – it's got camels. Another one of, like, paper umbrellas.

Padwa: Right, you know, pinecones. Or you can see little walnuts with ships embedded within.

Ari: And there's one, tucked back by the window, that, at first, might seem out of place.

Padwa: If you look carefully, so that's a series of alpha amino acids.

Ari: Alpha amino acids – the building blocks that make up proteins. This mobile is fashioned from enlarged plastic renderings of these molecules. Why this particular mobile? Well, Padwa's been a chemist for over 50 years, mostly at Emory. The mobiles and the rust art are just hobbies. And it's in chemistry where his love of tinkering, and making is truly manifest.

Padwa: Molecules are sort of like sculpture – they exist in 3-dimensional space.

Ari: Padwa is an organic chemist, which means he's literally a molecular sculptor. He figures out how to build molecules. Specifically, he works with chemical rings.

{**Padwa**: Sort of like a doughnut.

Ari: Yeah, sort of like molecular doughnuts,} made out of carbon and a few other elements.

Padwa: Most often nitrogen, oxygen, sulfur. And these kinds of molecules have very important biological properties that the pharmaceutical companies use to assemble new and important drugs.

Ari: The list of molecules that Padwa's had a role in synthesizing is remarkable. There's stuff you've heard of, like –

Padwa: Strycnine, which is actually a rat poison.

Ari: And lots of other stuff you haven't heard of – like, strempeliopine, and aspidophytine, and yohimbenone. Often times Padwa's molecular syntheses start off with chemicals found in nature.

Padwa: Nature has this remarkable way of putting together complex molecules. And so, once we have a sense of what the structure looks like, people like myself figure out innovative ways of assembling them.

Ari: However he makes his molecules, he's very good at it. And enough's never enough. Which is why, even at age "older than 70," he still comes into the lab.

Ari tape: There's never an end, is there, to science?

Padwa: No, it's a matter of whether or not you believe in exploration. I think this is basically what scientists do is we push the frontiers of our discipline. And my personality is such that I push many frontiers, whether it be in chemistry, in making mobiles, in climbing mountains…

Ari: And this is the last morsel of Padwa's life that I'll leave you with. He's a very accomplished mountain climber, too.

Padwa: Been on the base of Everest, climbed Kilimanjaro, been up to the top of Annapurna, which is about 23,000 feet and I spent almost a month of my life in -60 degree climbing that mountain. Once you get an addiction to them, it's like a magnet, a force that says, "Come up. I'm here to greet you."

Ari: Of mountains, of mobiles, and of molecules – Al Padwa says the same thing – find your passions, and gallop towards them all, simultaneously, as fast as your rusty legs will carry you.

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Our series, Small Matters, is produced by the Center for Chemical Evolution, and sponsored by the National Science Foundation, with additional support from NASA. I'm Ari Daniel.