Key words: ALMA

ESOcast 132 // Why Astronomers Want to Use ALMA – We are Stardust!	
00:00 **[Visuals start]** **ESOcast introduction**	**00:00** **[Visuals start]** ESOcast introduction
00:10 **[Narrator]** 1. What are you made of? You're made of matter, which is made of molecules, which are made of atoms. But where did those atoms come from? The ones in you! How were they formed? Well, they were created inside of stars! Really, you're made of star stuff!	
00:25 **[Narrator]** 2. Life needs a lot of different kinds of atoms to exist, like hydrogen, carbon and oxygen, but when the Universe began there was only hydrogen and helium: the very, very simplest atoms of all, and nothing else. Where did the others come from, then? Well, there's only one thing capable of creating bigger, more complex atoms: Stars!	
00:46 **[Narrator]** 3. Stars are born when clouds of dust and gas become very, very small due to the force of gravity. So small that the atoms in them don't have enough room anymore, getting extremely squeezed together and everything starts to heat up. The temperature gets so incredible high, that the smaller and simpler atoms are transformed into bigger and more complex ones – in a chain reaction called nuclear fusion.	

01:08 **[Narrator]** 4. The iron in your blood, the calcium in your bones and the carbon in your muscles were created in stars across the Universe. Stars that died and left dust and gas full of the new elements to eventually form other stars, planets and life. Our Sun is, at least, a second-generation star. Which means that all the atoms in our Solar System were created in an older star.	
01:29 **[Narrator]** 5.But how and where did those atoms form the molecules that ultimately became you and every living thing that ever existed? Well, no one knows yet, but ALMA might be a great help to find it out.	
01:39 **[Narrator]** 6. Large molecules, the ones that could be the building blocks of life, can only exist in dark and cold places in the Universe, places very difficult to study through visible light. But ALMA can see the faint radio light emitted by the coldest things in Space. And it can peer through those dark clouds where stars and planets are born and, maybe, discover where and when the first building blocks of life are created – answering one of the greatest questions of mankind.	
02:04 **[Narrator]** 7**.** Studying theses atoms and molecules is, in a way, like studying yourself. So, next time you think astronomy is the study of things that are far away and unrelated to you, remember, we are all made of stardust!	
02:18 **[Outro]**	*Produced by ESO, the European Southern Observatory.* *Reaching new heights in Astronomy.*