

Breakthrough, the rare science documentary that feels like a miracle

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- The poster for *Breakthrough*, a 2019 SXSW documentary about scientific hero/occasional Willie Nelson harmonica player Dr. Jim Allison.
Nathan Mattise
- Young Jim Allison, Texan to the core even if the world of science would take him around the country.
Jennifer Pearce / Uncommon Productions
- Dr. Allison these days, where he leads a team in Houston.
Jennifer Pearce / Uncommon Productions
- Srsly, the harmonica isn't just some filmmaking gimmick—Dr. Allison can *play*.
Jennifer Pearce / Uncommon Productions
- Portrait of scientist as hero.
Jennifer Pearce / Uncommon Productions
- The two systems developed into therapies by today's Nobel winners. For both systems, the APC is an immune cell that presents proteins to the T cell so that it can determine if they're recognized. On the left, if CTLA-4 (yellow) is engaged on the T cell, it tones down the immune response. The same thing is true for PD-1

(right), except it can be engaged by the tumor cells (pink) as well.

AUSTIN, Texas—"It's astonishing how few documentaries there are about gifted scientists," filmmaker Bill Haney tells Ars about *Breakthrough*, his new documentary premiering over the weekend at South by Southwest. "Part of it is, most filmmakers don't know much about science, they're thinking about film. But science can be complex, and audiences can be overwhelmed by scientific subjects. If you're not careful, you can make *NOVA*, which hits your head not your heart."

Ars at SXSW 2019

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Luckily for audiences, *Breakthrough* has both. And that's because (luckily for Haney) recent Nobel-winning scientist Dr. James Allison agreed to be the film's focal point. For those familiar with Allison's groundbreaking work centered on empowering the immune system to battle cancer, the documentary spends ample amounts of time in the lab detailing everything from how the scientist first became fascinated by T cells to his years of work leading up to the potentially game-changing cancer drug, Ipi. (No less than Woody Harrelson narrates each of Allison's scientific steps along the way.)

And while it may not pack in the same amount of information as reading an Allison paper directly, *Breakthrough* remains loyal to its academic source material in a way that's clear enough for any viewer to follow. The film quite frankly feels a little bit like a science communications miracle in this regard.

For the majority of us out there unable to differentiate CTLA-4 from *GTAIV*, however, *Breakthrough* also gives equal attention to the parts of Allison's life that didn't involve

data collection. His personality and personal journal prove to be every bit as awe-inspiring as his scientific record. Allison went from growing up in rural Texas messing with Gilbert chemistry sets ("I started doing more intelligent things, like making bombs," he recalls in the film), to fighting with his middle school teachers about evolution, to standing up to the Texas Legislature over the same BS decades later. Delightfully, he recalls serendipitous run-ins throughout the years over Lone Star tallboys or his harmonica with another soon-to-be Texas dignitary, Willie Nelson.

Breakthrough shows that every step of the way, Allison had a willingness to be himself and defend his passion for belief in science, no matter what. Growing up a Texas boy and aging into an Einstein-ian type of elder scientist, those two core traits meshed together into one unique man at the core of this film. As colleagues in *Breakthrough* describe him: Allison could "go to the beer hall, kick back a few beers, go back and finish the experiment, go sleep and do it all over again."

"First, I thought he was kidding," Allison tells Ars about being approached for a documentary. "But one of the things I felt as a kid in South Texas, when I was 10 or 12, I decided I wanted to be a doctor or scientist—but there were no role models. In fact, it was the opposite. If you weren't a jock or something, you weren't cool. Looking back, I think, 'Wow, that's wrong.' We need more role models. So if this movie can catch the attention of a few kids somewhere, it'd be worth it."

"It's astonishing how few documentaries there are about gifted scientists," filmmaker Bill Haney said at #SXSW. How 'bout one on a Texas tough Nobel winner who passionately defends his field against BS? #Breakthrough is the science film today's world needs <https://t.co/iE4hDWG1r2> [pic.twitter.com/0yQXWCd1fg](https://t.co/iE4hDWG1r2)

Great story, great storytelling

Learning about Allison, you get the sense that his story in the hands of anyone would be pretty compelling. In fact, *Breakthrough* features interviews with journalist Eric Benson, who recently profiled Allison for *Texas Monthly* (and it's a great read). But Haney seems to have made all the right filmmaking choices, from balancing the science and sentimental to picking his subject at the perfect time—though the film inevitably includes some late triumphant sequences tied to the Nobel notification and award, for instance, Haney had already been long into making the film at that point. “The last day of filming was the last day before the Nobel Prize,” the filmmaker tells Ars. “We didn’t know that when we began this project; it was 18 months in the making.”

With this iteration of Allison’s story, *Breakthrough* viewers of all backgrounds will inevitably learn *something*. If you’re science-minded, the dedication to accurately describing Allison’s decade-spanning work will be enlightening, an invigorating validation of curiosity and the scientific process in the long run. But those not regularly following the field will see many of the ways science infiltrates the headlines today—legal battles over drug patents, politicians choosing the less logical route, etc.—are far from new phenomena. This film debuted at SXSW in front of an audience made from all walks of life, but future theatrical runs targeting the East Coast wouldn’t hurt.

“For most of my life, the idea of curing cancer was a joke, a tag line—‘You’re not doing your work?! What are you, too busy curing cancer?’” Haney says. “At a time when the world seems faced with challenges we can’t imagine wrapping our mind around—what are we going to do about climate change, endangered species, economic development for the poor, the

border—it can feel so overwhelming that people are inclined to bury their heads in the sand and hope it passes.

But Jim inspired and led a team of folks to solve in some ways perhaps the most unsolvable challenge of them all, and in some ways you can see the type of culture that can be used to solve great challenges: a gifted leader with a sense of purpose bigger than themselves, the capacity to engage warmly over a beer or in a lecture hall, a resilient team that works pragmatically together and uses facts to come to conclusions that benefit us all. For the theoretically political leaders that use fear and confusion to divide us, Jim's story is an example that we can solve other diseases and lots of other things with this methodology."

Disclosure: Ars science editor John Timmer once spent 10 weeks in Jim Allison's lab at Berkeley. Timmer claims his only significant discovery was that he did not want to study immunology.

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