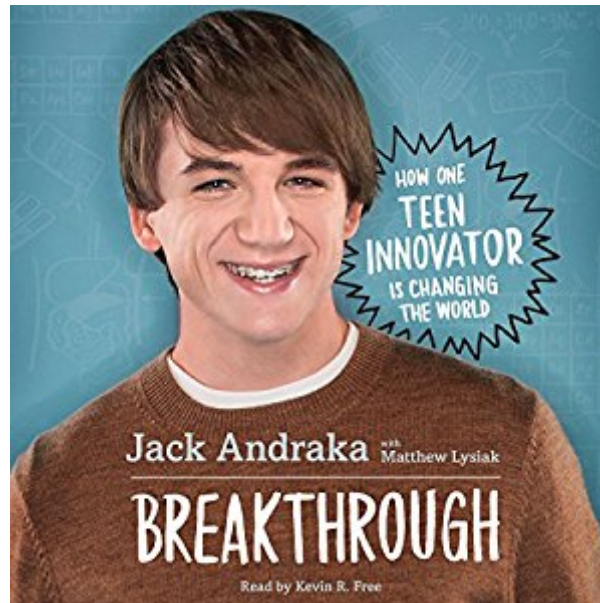


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# Breakthrough: How One Teen Innovator Is Changing The World



## Synopsis

Jack wouldn't give up. After a dear family friend died of pancreatic cancer, Jack Andraka decided to create a better method of early detection. It took 200 letters before Jack found lab space to pursue his idea and months of work to make it a reality, but in the end he did it. Jack's early-detection test for pancreatic, ovarian, and lung cancers has the potential to be more than 400 times more effective than the medical standard and costs only three cents. Jack was 15 at the time. Jack's story is not just one of dizzying international success; it is a story of overcoming depression and homophobic bullying and finding the resilience to persevere and come out. His account inspires young people, who he argues are the most innovative, to fight for the right to be taken seriously and to pursue their own dreams. With hands-on science experiments included, Jack's memoir empowers his generation with the knowledge that we can each change the world if we only have the courage to try.

## Book Information

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## Customer Reviews

I need to tell you before I proceed with my review that I worked as a Physics/Math teacher at the school where Jack received his middle school education. Therefore, my review will be completely biased both towards how good the book is, and how awesome science is! I finished this book in one sitting, and I loved it! The book shows the reader how a teenager can change the world when he or she sets his or her goals clearly. Jack also makes clear how crucial support from parents and experienced scientists is. I knew Jack's parents personally, and as far as I could see, they were quite involved in Jack's life and tried to make sure he had all the resources he needed. When you

read the book, you will see what kind of challenges Jack had after he decided on his research topics, and how many rejection letters he got from leading scientists in the USA. Some of those letters were even insulting, but Jack did not give up even when he reached the brinks of breakdown. The book sheds some light on how big egos some scientists, even teachers, can have. The points Jack puts forth should be taken into account by people in charge of Science and Technology (STEM or whatever you may call them) education and be used to develop curricula, materials, and most importantly, learning environments like the basement Jack refers to in his book. When I was teaching in the USA, I kept pushing for an engineering lab where students could experiment with different materials, tools, equipment, etc, but, of course, administrators did not agree to it because they did not understand the importance of intellectual curiosity and being able to feed it with the physical tools and equipment needed.

Jack Andraka was quite young when he wrote this autobiography, but what he had already accomplished is amazing. He developed an inexpensive test for pancreatic cancer as a science fair project. My own physician thinks that the test, perhaps after some modifications, could be FDA-approved and become routine in a few years. There is some public criticism of the work (the conduct of the whole peer review that must follow), and of the originality of the idea. That laid aside, the narrative is remarkable. Jack felt inspired to do the project after an uncle died of the disease and when he had an epiphany (over the use of carbon nanotubes) in an AP biology class in high school. He persisted, writing 200 letters to get lab space at Hopkins in Baltimore to do the experiments. In the book, he talks about rejection letters. "That one hurt," he says about one particularly boorish one. Sometimes he sounds a little naïf about the merits of catching cancer early. Pancreatic cancer can be so aggressive that it takes incredible social support to overcome it even if it could be cured if caught earlier. Steve Jobs died of pancreatic cancer ultimately, although of an unusual variety that would not be detected by Jack's test. Jack's book was promoted heavily by public relations and the publisher. He spent the last half of his senior year in high school on the road, doing his homework on airplanes and in hotel rooms. One hotel room in Houston, he says on Twitter, had a "free fish" for him to take care of. As a freshman at Stanford, the travel pace has apparently necessarily slowed. But it sounds like Stanford is supporting the followup work to get his test peer-reviewed.

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