

**PIPET UP** Senior Joshua Choe examines lung tissue in the Jay Kim lab at the University of Texas at Dallas, searching for a unique type of cancer, lung squamous cell carcinoma.

BURNING THE MIDDNIGHT OIL: LIFE, ACADEMICS

34 35 ACADEMICS

# MINDS ON FIRE

**AN INNOVATOR OF THE FUTURE**, senior Joshua Choe embodies the essence of an academic Marksman. Recognized as one of 40 finalists for the Intel Science Talent Search in 2016 for his research on squamous cell carcinoma, a type of cancer that accounts for near 30 percent of all instances of lung cancer, Choe works late nights and early mornings to accomplish his goals and add more to the body of human knowledge.

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**INSPIRED** Tinkering with a robot in the information and engineering class, senior Noah Koecher (far left) uses programming skills to track a colored ball. Trying their hand at tai chi, Chinese students (above left) get first hand experience with the ancient art in the gym. Presenting their Moby Dick project in GayMarie Vaughan's AP English literature class, seniors Mitchell So and Kevin Kim (left) perform a musical representation of the chapter, "The Grand Armada." The two used their violins to accompany a research paper on the class topic.

WITH A FULL TIME LAB JOB AFTER SCHOOL, SENIOR JOSHUA CHOE BALANCES HIS EXTRACURRICULARS WITH SCHOOLWORK IN HIS QUEST TO REVOLUTIONIZE CANCER RESEARCH

# IN A PURSUIT OF KNOWLEDGE

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It's a morning like any other. A little groggy from being at lab until 1:45 a.m. last night, I know AP chemistry first period will get me back in the groove. While I work on our titration lab, I think about my plans for the weekend: putting the finishing touches on my bait cannon for fishing.

I'd seen many air cannons before, but the bait cannon is an invention of my own, a hybrid of two things I love, fishing and building. The final product will be able to shoot 300 yards. My workshop in the garage is one of my favorite places

and a temple where I built everything from catapults to a roman gladius for Latin class.

Back to school, as the day continues, I'm excited to find myself in AP English literature. I think again to my workshop and most recent project: a full-scale harpoon for a Moby Dick assignment.

When you're reading a book, some aspects don't always make complete sense, but when you're actually doing it and experiencing it yourself, that's when concepts solidify. I want to feel the same wood Queequeg held as he harpooned the great whales we've read

about. Finally, it's 3:10, time for the real day to begin. My real passions, being creative and being curious, while fostered at St. Mark's, come to full fruition when I go to my lab. Only a 30-minute drive, the Jay Kim Lab at University of Texas at Dallas is a home away from home.

I get to lose myself in my work, searching for the connections between glucose transporter 1 and squamous cell carcinoma, a rare and deadly form of lung cancer. While there are so many tests to run, I have to keep the big picture in mind, finding a way to starve the cancer

cells of energy and save lives.

For me, textbook learning is great and very interesting, but with research, you're writing the textbook. It's something nobody else has ever seen before, and you're the first person to observe a new phenomenon.

Ever since I was five, I've had a curiosity to go beyond what's expected. I'd get Christmas presents, and after only a few hours of playing with the toy, I'd move on to the box. With toys, you're restricted to the toy itself, but with the box, you can do anything. I used to make tanks and forts out of them. The

possibilities are unlimited. I've loved that, and St. Mark's has helped me direct it in the science field.

St. Mark's has guided me into finding my own passions as I've grown, and I'm glad I took a chance to go outside of my comfort zone. I know it's said a lot, but going outside of the box launched my research career by pushing me into something completely new, and I think there's meaning in that.

An insatiable curiosity guides me, and in the end, I'm determined to elucidate the unknown no matter how late I have to stay at lab.



**LAB WORK** Garbed in his lab coat, senior Joshua Choe — no novice to complex lab equipment — spends a late night researching new ways to fight cancer at the Jay Kim lab at the University of Texas at Dallas.

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