

Teacher Information Sheet

Meet a Plant Biologist: Dr. Adán Colón-Carmona



This is a teacher's sheet for the three readings on Dr. Adán Colón-Carmona. It contains extra context for the readings and information that can be shared with students. We recommend also using the the grade 3-5 reading for background information.

Additional Information:

last updated January 2022

- Dr. Colón-Carmona is a professor of biology at the University of Massachusetts in Boston (UMass Boston).
- Dr. Colón-Carmona studies "how plants respond to and can degrade petroleum pollution, how they interact and collaborate with microbes such as bacteria to grow better in harsh environments, and how plants create new organs when new organs are needed for better health."
- Dr. Colón-Carmona shares that: *"Two of the most rewarding things about my job are being able to decide what to scientifically study in the lab and having the ability and opportunity to have an impact on society through my science and interactions with students, who will be the future scientists."*
- His research team comprises people from all over the world!
- Dr. Colón-Carmona also shares about his childhood and path to his current career: *"When I was 5 years old, my family immigrated to the US from Zacatecas, México. I am the first in my family to attend college, graduate from college, and continue my education to receive a doctoral degree. I utilize my personal experience to motivate others to pursue a career as a scientist."*
- As advice for students he shares: *"Be courageous in trying new things, even when work is difficult. Persistence in something that is new and challenging can bring satisfaction in learning you were able to do something you've never done before. Also just because no one else around you is interested in what you are interested in, it does not mean that you should change your interests. Rather you've identified what makes you happy and unique."*

Education and Career Path:

- Dr. Colón-Carmona studied in biology in college.
- For his PhD he studied cell and developmental biology in plants, specifically cell shape and division in soybean.
- After his PhD he took a research job (post-doctoral position) studying how plant cells communicate and divide in the plant *Arabidopsis thaliana*. This plant is commonly used as a **model system**.

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Dr. Adán Colón-Carmona & Science Standards

Below we outline the ways Dr. Colón-Carmona's work can be connected to K-5 science and STEM standards or teachings.

Links to K-5 standards:

- Dr. Colón-Carmona's readings can be used as a supplement for the numerous standards that address plants and plant growth.

They can link to the NGSS performance expectations:

kinder: K-ESS2-2 K-ESS3-1

1st: 1-LS1-1 1-LS3-1

2nd: 2-LS2-1 2-LS2-2 2-LS4-1

3rd: 3-LS1-1 3-LS3-1 3-LS3-2 3-LS4-3 3-LS4-4

4th: 4-LS1-1

5th: 5-LS1-1

- Dr. Colón-Carmona studies how plants grow in response to pollution or when they are stressed. Consider **planning and carrying out an investigation** in collaboration with students to test how seeds grow under different conditions. For example, you could "pollute" seeds by covering them in soap. Or you could see if your seeds will grow with salt water vs. regular water. Your students will likely have great ideas! Students can then **analyze and interpret their data**.

Planning and Carrying out Investigations and Analyzing and Interpreting Data are both NGSS Scientific and Engineering Practices.