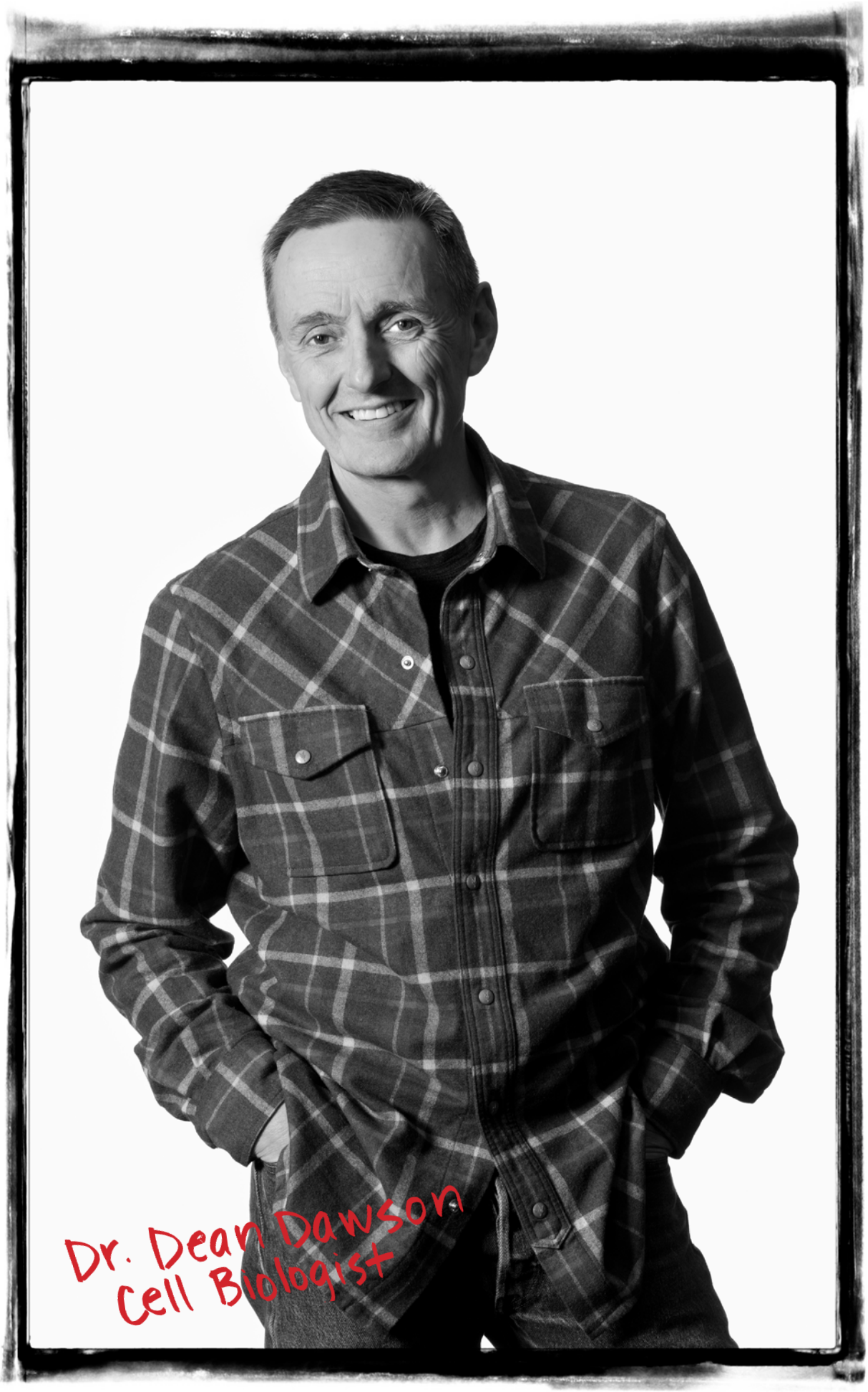
RESEARCH MATTERS

2016 Annual Report

Oklahoma Medical Research Foundation


Dr. Dean Dawson
Cell Biologist

Scientists Matter

When Dr. Dean Dawson was young, he lived in North Dakota, just a few miles from the Canadian border. As soon as he got home from school, he'd head outside. "I had a dog," he says, "and we'd go out into the woods and play until dinner." With his canine sidekick, he'd catch fish from streams. Build forts. Track animals. "I loved the outdoors."

A talent for science earned him a degree in microbiology and a spot in a top-flight Ph.D. program. But before he pursued his doctorate, he spent the summer after college battling forest fires in Wyoming. He enjoyed the excitement and time outdoors, and he figured if graduate school didn't pan out, he'd just "go back and fight fires."

Dawson sits in an office chair while recounting these memories. He fidgets and laughs and punctuates lots of what he says by adding, "I don't care if you write this down." At any moment, he seems like he might pick up his backpack—which lies on the table behind him and which he wears when he bikes to work most days, like he did this particular morning—and make a beeline for the nearest grove of trees.

But the woods aren't where Dawson is headed. Now a cellular biologist at OMRF (grad school worked out just fine), his next stop will be the laboratory. There, he'll continue the journey to which he's devoted three decades of his life: "trying to figure out how the cells that make up each one of us can divide literally trillions of times and almost always maintain the perfect 46 chromosomes per cell necessary for our bodies to function properly."

When the process of cell division goes awry, we produce the wrong number of chromosomes. Those errors lead to life-threatening outcomes, most notably birth defects and cancer.

Through his research, Dawson works to devise a "parts manual" for the microscopic engines that power our bodies. "I study the cellular machinery and figure out which parts are most vulnerable to malfunction, causing cells to become cancerous."

For Dawson and his lab, the path they're following these days has brought them to a gene they've termed a "master regulator." All cells need the gene, but cancer cells seem to require supersized servings. His team now is focused on identifying the specific proteins this gene controls. "We're trying to figure out which of its targets are necessary for cancer cells to survive," he says. The researchers will then "look for a very special drug that switches off those targets."

If that leads to a lifesaving treatment, Dawson will have played an essential part. "It's a pyramid of scientists and physicians, all handing information to the top," he says.

To the public, Dawson's role in the process remains largely invisible. But that's fine with him. "I'm happy if our work can contribute to finding solutions in the long-term." Then he grins, looking for all the world like a kid who just landed a big walleye.

825 NE 13th Street
Oklahoma City, OK 73104
405.271.7400

omrf.org