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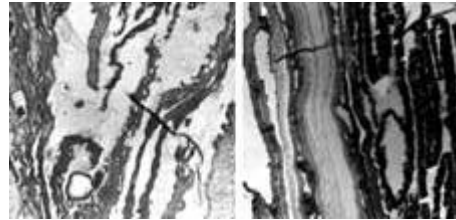
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Studies get to root of dandruff, reveal new causes, cures for ailment

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By: [Jane Schwanke](#)

Dermatology Times



Electron micrographs showing dandruff stratum corneum before (left) and three weeks ZPT posttreatment. Note return to more normal morphology with closely opposed, flattened, electron-dense cells and no *Malassezia*.

New Orleans - When it comes to understanding dandruff, two top researchers at Procter & Gamble are successfully getting to the root of the nasty scalp condition that affects more than half of the global population. Innovative research in P&G's lab has yielded some surprising new data about a type of fungus that grows on the human scalp. The study findings point to new causes of dandruff and lay the groundwork for new cures.

Senior scientist Thomas L. Dawson Jr., Ph.D., and research fellow James R. Schwartz, Ph.D., of P&G's Cincinnati-based technical centers, presented the compilation of several years of fundamental research in a three-part poster at the American Academy of Dermatology's annual meeting in New Orleans.

"We want dermatologists to understand the science behind our work," Dr. Schwartz said. "The fact is, we are designing products today to treat dandruff based on a substantial level of knowledge and on really hard state-of-the-art science."

Dr. Dawson agreed. "That's been a big part of the research focus here ... trying to get a better understanding of what makes a healthy scalp versus a dandruff scalp."

For both doctors that insight began five years ago with a grasp of the fundamental demographics of dandruff. Although dandruff is one of the most common dermatological conditions, affecting males and females beginning at puberty and continuing throughout life, the universal problem nonetheless has shed few clues about its molecular etiology. Drs. Dawson and Schwartz have uncovered some unexpected information about *Malassezia*, an organism composed of seven separate species.

"*Malassezia* has been around for about 100 years, and one of our key findings involved the species *Malassezia furfur*, which was most commonly referred to as being on human skin and part of human skin disease - in dandruff as well as other human skin diseases," Dr. Dawson said. "But as we looked at the microorganisms on human scalp, *furfur* wasn't there. This finding allows us to more clearly target the microorganisms that actually are on the human scalp."

The researcher's work with *Malassezia* has led them to conclude that *M. furfur*, *M. obtusa*, *M. slooffiae*, or *M. pachydermatis* cannot be the cause of dandruff. This finding paves the way for them to better target the microorganisms of the human scalp and the metabolic processes of dandruff, according to Dr. Dawson. "We know we're on the right track," he said.

The etiology phase of the research helped the scientists understand the microbes found in the human scalp - a phase that shed light on the causes of

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dandruff.



"There is so much more lipid on the scalp than anywhere else on the body," Dr. Dawson said. "Microorganisms essentially eat the lipids and in the process release free fatty acids that are quite irritating to the skin." Most notable among these irritating compounds is oleic acid, which is a primary component of human sebum. The interaction of oleic acid with the scalp induces the flaking and hyper-proliferation that presents as dandruff.



"We have now shown that oleic acid alone can induce dandruff-like flaking in dandruff sufferers," Dr. Dawson said.



But their work is not complete yet, and their commitment to learning more continues. "It's an ongoing process," Dr. Schwartz said. "In a mild condition, dandruff is not a big deal. But severe dandruff can lead to a true quality of life issue with a lot of itching and discomfort.

"Dermatologists can feel assured that we are using the most advanced technology and the most advanced learning to help treat their patient's dandruff," he adds. "That is the key point of our fundamental work, and it's the [goal] of our three-part dandruff series."

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