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By Chris Tachibana

Crystals in lab, rock on stage

Danish rock musician Johan Olsen is just as excited about protein crystals as he is about his band's new album

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When [Johan Olsen](#) walks through the Copenhagen University cafeteria, undergraduates' eyes light up in recognition. Olsen does beautiful protein crystallography, but that's probably not why he's such a hit with the student body. He's famous in his native Denmark for being the lead singer for [Magtens Korridorer](#), one of the country's most popular rock bands. In 2006, they won the Danish equivalent of a Grammy for new band of the year, and performed at [Roskilde Festival](#), an event that draws 75,000 people annually, with headliners like Prince and Patti Smith.



During his own undergraduate days, Olsen wasn't looking to add "Grammy-winning rock star" to his resume. "I have a musical background in the sense that as a kid I played the violin, and my father is a musician with the Danish Radio Symphony Orchestra," he says. "I sang constantly at home, which my mother and brother hated, but I have no vocal training."

But one night at a party in 1994, a total stranger asked biology student Olsen if he could sing, and when he said no, he was invited to join a punk band. Magtens Korridorer (the Danish translation of [Corridors of Power](#), the title of a C.P. Snow novel) didn't release an album until 1998, but a song from a 1996 demo tape became a national hit. All of this transpired as Olsen did a Ph.D project on x-ray crystallography at Copenhagen University, and a postdoc at Carlsberg Research Laboratories.

"I worked at Carlsberg until 2003," says Olsen, "then I wanted a part-time job so I could dedicate more time to music. In science, it's difficult to find people who accept that, so I was unemployed for a year. I was playing music all the time, so it was wonderful, but I missed doing science." His former boss at Carlsberg, crystallographer Anette Henriksen, occasionally gave him data to analyze, to keep his scientific skills sharp. "She did all the calculations herself anyway, but she let me have the raw data so I could have fun with it at home," says Olsen.

In 2005, Olsen landed the perfect 25-hour-a-week job when [Birthe Kragelund](#) hired him to be a protein crystallographer in her nuclear magnetic resonance (NMR) lab at the University of Copenhagen. The lab studies intrinsically unfolded proteins, which lack a defined structure, making life challenging for a crystallographer. "But NMR and crystallography complement each other well," says Olsen, "You can crystallize a protein of any size, but you get a static picture. In NMR you have a size problem, but you get information about the dynamic properties of the protein." Olsen's duties are to "train students, grow protein crystals, and solve their structures." As the resident crystallographer, he is a "sparring partner" in discussions with the NMR experts.



Olsen cheerfully uses his celebrity to promote science. He hosts science contests and radio shows, and with Birger Brodin, an assistant professor in Copenhagen University's Department for Pharmaceutics and Analytical Chemistry, he has a "science stand-up" show. It originated at Roskilde Festival with explanations of "the molecules involved in partying and the smell of urine." For example, Olsen once

gave a molecular biologist's perspective on the safest and most appropriate mind-altering substances to festival goers. (The take-home message: laughing gas and beer are recommended. Hash won't kill you unless you can stuff down 680 kg in 15 minutes. Alcohol shots are a bad idea -- you'll miss too much music.)

In October, Olsen and Brodin will perform their molecular stand-up for Copenhagen's Culture Night, an evening of performances and open houses throughout the city. Their show will present "drawings of molecules that reduce love to neurotransmitters like oxytocin, dopamine, and serotonin", to spur discussions on the reductionist scientific approaches, and the search for truth. "And it's funny," adds Olsen.

These are only a few of many projects for Olsen, who is 41 and the father of two boys, ages 9 and 13. Magtens Korridorer is in the middle of a 30-concert tour across Denmark, promoting their fourth album, *Milan Allé*. The band is also talking with concert organizers in Norway and Sweden about doing a wider Scandinavian tour.



Between shows, Olsen returns to the lab. He says his science and music are different worlds. Balancing "noisy, dirty, shouting rock music" with the lab, where "you have to keep your mind cool" requires some finesse. Olson's no Dr. Jekyll though. "I'm the same person. I wear the same clothes in lab and on stage," which explains the looks in the cafeteria. Students who see the black T-shirt and hat might remember them from this morning's biochemistry seminar -- or from last night's club concert.

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