FOOD SAFETY

Kamaljit Kaur

CURRENT POSITION: ASSOCIATE PROFESSOR, FACULTY OF PHARMACY & PHARMACEUTICAL SCIENCES
FIELD: RESEARCH IN MEDICINAL CHEMISTRY
WHY SHE'S ONE TO WATCH: KAUR'S WORK WITH PEPTIDES – COMPOUNDS THAT OCCUR NATURALLY IN FOODS SUCH AS YOGURT – HOLDS GREAT POTENTIAL IN FOOD SAFETY AND CANCER TREATMENT.

WHEN KAMALJIT KAUR CONTEMPLATES A CONTAINER OF YOGURT, SHE SEES MUCH MORE THAN A TOPPING FOR HER MORNING GRANOLA. The lactic acid bacteria in yogurt produce peptides, compounds that lie at the very centre of her research. "These peptides are very friendly to humans," she says.

In fact, they're more than just friendly. Those peptides, it turns out, are very effective in killing pathogenic bacteria, like listeria, a foodborne illness that can cause serious infections. By harnessing the power of peptides, Kaur and her colleagues could potentially banish listeria from our food industry, along with other deadly microbes such as *E. coli* and salmonella.

Because they are derived from food sources, these antimicrobial peptides, also known as bacteriocins, could provide industry with a much healthier way to fight pathogens. "Current practices use a lot of chemical preservatives and conventional antibiotics," Kaur explains.

Kaur's work earned her $495,000 in funding from the Food Safety Research and Innovation Program, with the support of Alberta Innovates Bio Solutions and the Alberta Livestock and Meat Agency. During a three-year research project, Kaur and her colleagues hope to develop new methods for mass-producing these bacteriocins.

The project teams Kaur with longtime colleagues David Wishart, Computing and Biological Sciences; Lynn McMullen, Agricultural, Food and Nutritional Science; and industrial partner CanBiocin Inc. (See page 30 for more on Wishart's research.)

Kaur has another major research area also focusing on peptides—using them to target cancer cells, including breast cancer. "That's equally exciting," she says modestly, "but this grant is mainly for our antimicrobial work."

Above all, Kaur is grateful for the atmosphere of support and collaboration at the U of A. "The funding makes it possible for our team to pursue our ideas," she says. "These peptides are very promising, and they haven't been explored to the extent they should have been." —*SR*

AGING POPULATION

Hannah O'Rourke
'08 BScN(Hons)

CURRENT POSITION: PHD STUDENT IN NURSING
FIELD: QUALITY OF LIFE FOR DEMENTIA PATIENTS
WHY SHE'S ONE TO WATCH: O'ROURKE RECENTLY RECEIVED THE PRESTIGIOUS VANIER SCHOLARSHIP – $50,000 A YEAR FOR THREE YEARS – A RARE HONOUR FOR A NURSING STUDENT. AS OUR POPULATION CONTINUES TO AGE, HER WORK IN DEMENTIA STANDS TO BECOME EVER MORE IMPORTANT.

FROM HER EARLIEST DAYS AS A NURSE, HANNAH O'ROURKE HAS BEEN DRAWN TO WORKING WITH PEOPLE WITH DEMENTIA. "Those were the people I really enjoyed working with, and who surprised me—who really got underneath my own assumptions," she recalls. "You have something in your mind of what Alzheimer's disease means, or dementia. I found, when I was actually working with these people, that things are much more hopeful and not nearly as sad or depressing as I thought they might be."

Over time, O'Rourke began to recognize that many patients face similar barriers in their day-to-day lives. "I thought, you know, there are probably some pretty simple things we could do here that could make things a lot better." She suggests giving care providers the time and training they need to develop positive, supportive, respectful—and personal—relationships with patients with dementia. She also hopes to find and document better ways to listen to people with dementia, to draw on their own experiences and knowledge in order to improve their lives.

"Persons with dementia really can speak about their lives, and can speak about what matters to them. So there's more of a drive now to actually speak to people with dementia, and not assume that we know what matters to them."

For her PhD thesis, O'Rourke is synthesizing findings from 12 studies that involved interviewing individual patients about their lives. She hopes to identify specific measures that will make the biggest difference for the largest number of patients.

"My dissertation looks at identifying a common set of factors that influence quality of life. It's useful from both a health care and a research perspective to identify some common things that we can do at a health-systems level to improve quality of life."

With growing policy concerns over an aging population, O'Rourke's work could very well help improve future care for people we love.

"How can we really know how to improve their lives if we don't ask them?" —*SR*