Less invasive cancer tumour treatments was one of the topics tackled at the 2007 Gairdner Foundation lectures.

his team's efforts to track DNA during separation.

A cell must line up all 46 chromosomes in its nucleus before separating. An enzyme called cohesion holds the chromosome pairs inside a protein ring until the moment when they are all aligned and another enzyme, dubbed separase, kicks in. Intrigued by how DNA got inside the cohesion ring, Nasmyth found that the cell twists open a hinge on 1 side of the ring to allow the DNA to enter.

Cohesion also seems to have other uses besides cell division. A lack of cohesion has been traced to Cornelia de Lange Syndrome, which affects child development, Nasmyth said.

Harry Noller: X-rays mark the spot

Awarded for his pioneering work in x-ray imaging, the director of the Center for Molecular Biology of RNA at the University of California, Santa Cruz, California, used animation to illustrate his efforts to map ribosome structure.

A mass of what appears as unraveled, tangled videotape sits inside our cells. Noller's team mapped that enzyme, called a ribosome, to unprecedented detail using x-rays, in hopes of understanding how it decodes RNA — nucleic acids that are associated with the cell's chemical activities.

Noller said the ribosome moves in concert with the movements of RNA

through its massive structure. The team hopes to completely map the process.

Thomas Steitz: Drugs target the spot

Building on advances in the knowledge of ribosome structure, the professor at the Department of Molecular Biophysics and Biochemistry, Howard Hughes Medical Institute at Yale University in New Haven, Connecticut, outlined how awareness of the process can help in the design of less resistant antibiotics.

A class of antibiotics called macrolides, for example, bonds in a peptide tunnel inside the ribosome, Steitz said. Different families of antibiotics bind to different areas in the ribosome. Thus, a researcher can take a piece of 1 antibiotic, bond it to a piece of another, and make a hybrid that binds to the ribosome more tightly and combats antibiotic resistance.

Dennis Slamon: Different breasts, different cancers

Sketching advances in breast cancer research, the professor of the Department of Medicine at the University of California at Los Angeles said it was once believed all breast cancers were of similar composition and should receive similar treatments. But research indicates that more molecular information about cancer should lead to more effective — and less invasive — therapy for patients, Dr. Slamon said.

Slamon was honoured for discover-

ing, in 1989, that 20% to 25% of breast cancers have an overactive hormone called HER2. He targeted the hormone using herceptin, in combination with chemotherapy, and found it improved the survival rate of cancer patients in the first year after therapy.

Burning up tumours

Among the addresses from former Gairdner recipients and other prominent medical researchers was 1 from Tak Mak, the director of the Campbell Family Institute for Breast Cancer Research and Senior Scientist at the Division of Stem Cell and Development Biology, Advanced Medical Discovery Institute/Ontario Cancer Institute. It tackled the so-called oncogene revolution.

Mak argued that the revolution set back clinical oncology. In 1976, he said, researchers had a dream: to cure cancer by blocking oncogenes. Some inhibitors have been in trials for more than a decade, but with limited success, he said.

Instead, Mak suggested targeting metabolism as the basis for a new anti-cancer strategy and cited his recent work using diachloroacetate in mice, which appears to suppress tumour growth (*Science STKE*, 10 April 2007, p. pe14) — Elizabeth Howell, *CMAJ*

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News @ a glance

Ratatouille: Lab rats. Peons. Minions. Grad students. Postdocs. The time has come to finally eliminate the interchangeability of such labels within British universities, says the UK Council for Science and Technology. Calling for a major overhaul of the way universities treat “lost souls” otherwise known as young researchers, the nation's chief science advisory body has urged such radical reforms as wider use of research fellowships and setting aside more monies at research councils for fellowship programs to prevent the next generation of scientists from having to first serve as slave labour for the ruling research gerontocracy. “Giving an early-career researcher the opportunity to apply for even small sums of funding at an early stage gives them valu-

able experience and greater control over the research they are undertaking," the council said.

Trial halted: Drug giant Bayer Inc. last month moved to suspend worldwide marketing of the drug aprotinin (Trasylol) until the final results of a Canadian trial are compiled and evaluated. The multi-year, multi-centre clinical trial weighing aprotinin's merits against 2 an-

tifibrinolytic drugs in preventing bleeding during bypass surgery was suspended in October, prompting the US Food and Drug Administration to announce that is now weighing whether to remove the drug from market or require additional warnings on its label. The trial's Data Safety Monitoring Board shut down the study after preliminary findings indicated that patients given Trasylol had a 2% higher risk of dying compared with those

given epsilon-aminocaproic acid and tranexamic acid. Co-chaired by *CMAJ* Editor-in-Chief Dr. Paul Hébert and Ottawa Health Research Institute Senior Scientist Dean Fergusson, the study's full name is "Blood Conservation using Antifibrinolytics: A Randomized Trial in High-Risk Cardiac Surgery Patients." — Wayne Kondro, *CMAJ*

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DISPATCH FROM THE MEDICAL FRONT

Goats and sewing machines

It had taken our medical team 45 minutes to drive to the small, dusty roadside hut of our next patient. We entered and saw an old emaciated woman, lying on the bare mud floor. Her daughter and 2 grandchildren who were standing anxiously by her side, seemed relieved at the arrival of "the doctors." The tumour in the woman's mouth had eaten away the flesh on her cheek, exposing her gums and teeth. Two hours later, after rehydrating her with IV fluid and giving her a nutrient-rich drink, we were back on the road. In a couple of days, we would return to bring her a coconut fiber mattress and a single bamboo cot. At the very least, we had ensured that she could now spend the last few days of her life in a more dignified manner, surrounded by those she loved.

As a first-year medical student at the University of Western Ontario, I was volunteering with a novel medical initiative called "Care Plus" in the south Indian city of Thiruvananthapuram. It was started by a group of local physicians who wanted to provide free palliative care to cancer patients in the city who could not afford the expense that the treatment would involve.

While talking to these patients, I learned that what worried them the most was not the grim reality of their impending deaths but rather, the enormous financial burden that their disease was placing on their family members. In response to this concern, Care Plus would provide them with the means — for example, a sewing ma-

George Puthenpurayil/Jacob

Established by a small group of physicians in 2003, a novel home care initiative in India offers free medicines and wound dressings for terminally ill cancer patients in the final months of their lives. The program also aims to reassure the terminally ill that their families will be helped to get back on their feet after the patient's death. The latter has included the provision of things like goats and sewing machines to establish small commercial ventures, or monies to cover the educational expenses of children.

chine — to set up a small business venture that would earn a steady income after the patient dies. In addition, they would occasionally cover the educational expenses of the patient's children, including tuition and the cost of school supplies. This holistic approach to palliative care, completely funded by donations, changed my perspective of end-of-life care and the role of medicine in fighting poverty.

I can still see the tears of joy rolling down the cheeks of one woman suffering from cancer after I told her that her daughter's nursing school education would be fully funded. It was so humbling to think that in the midst of such desperation, one could still offer a ray

of hope. Is that not what palliative care is about, anyway? — George Puthenpurayil Jacob, London, Ont.

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CMAJ invites contributions to Dispatches from the medical front, in which physicians and other health care providers can provide eyewitness glimpses of medical frontiers, whether defined by location or intervention. The frequency of the section will be conditional on submissions, which must run a maximum 350 words or be subject to our ruthless editorial pencils. Forward submissions to: Wayne.Kondro@cma.ca