

# Brain research takes new tack

## U of T links chemicals to senility, psychosis

By Marilyn Dunlop Toronto Star

Research at the University of Toronto is leading to new understanding of how brain cells communicate by means of chemicals and how those chemicals may be involved in schizophrenia, Huntington's Disease and senility, a Toronto scientist said yesterday.

Dr. Bertha Kalifon Madras of the Clarke Institute of Psychiatry, assistant professor of pharmacology and psychiatry at the U of T, spoke at the Congress of Neurological Surgeons at the Sheraton Centre where about 2,000 congress members from 37 countries are attending a week-long meeting.

"Since 1974 there has been almost a revolution in research into the brain, with the discovery of molecules that seem to be responsible for anxiety, psychosis, possibly depression and some neurological disorders," Madras said in an interview.

The molecules are receptors on nerve cells that pick up chemicals. Some 30 to 40 chemicals that brain cells use to communicate with each other have been identified so far. Each has its own receptors.

The number of receptors can increase or decrease but so far it's not known what governs them, she said.

In 1975, Dr. Philip Seeman of the U of T department of pharmacology identified dopamine receptors — dopamine is one of the brain's communication chemicals. Seeman persuaded a drug manufacturer to label with radioactivity a drug used to treat psychosis so he could see where it acted on the brain cell. It disclosed the receptors.

"Until then nobody knew where to look," Madras said. Two years later, Seeman found in a post-mortem study of brain tissue that many schizophrenics have an excess of dopamine receptors — roughly twice as many as a normal brain.

The research put Toronto among world leaders studying brain chemistry.

Seeman also found that part of the excess is caused by drugs, Madras said. Untreated patients, although they had high numbers of receptors, had fewer than patients treated with drugs for their illness.

Madras, in collaboration with Seeman and a team from State University of New York, Buffalo, is investigating the nature of the receptor molecules and how to control their numbers. Learning why the number is high in schizophrenics might explain the cause of the illness, she said.