

life sciences

BIOCHEMISTRY

Big and little insulin

The insulin hormone has two distinct chemical components. One, called little insulin, goes to work as soon as sugar is ingested. The other, big insulin, is larger and comprises up to 50 percent of insulin in the circulation two hours or more after consumption.

Dr. Jesse Roth of the National Institutes of Health, Bethesda, Md., discoverer of the dual insulins, says that the physiology of insulin production must be re-examined in light of the new finding. The relationship of the two insulins to each other and the possible connection between big insulin and proinsulin remains unknown. Proinsulin was identified last year as a substance within the pancreas that is a precursor of insulin.

DMSO

Testing curbs eased

The Food and Drug Administration has loosened restrictions on experimental use of DMSO (dimethyl sulfoxide), the chemical solvent with remarkable ability to penetrate skin, carrying other drugs with it.

Investigators no longer need to get prior approval from FDA in order to test the drug on humans. However, their experiments may not extend more than 14 days and results must be reported to FDA.

Under the new regulations, DMSO may now be used for such conditions as inflammation of muscles or joints and on large bruised areas. Previously, its use was restricted to serious disorders for which there is no alternative therapy.

Dr. Hubert L. Ley Jr., FDA commissioner, says tests with human volunteers "have now established that short-term use of DMSO is reasonably safe."

CANCER

Interferon prolongs survival of mice

Mice inoculated with the virulent cancer-causing Rauscher virus die within four and a half weeks. Animals inoculated with identical doses of the virus but also injected with interferon may survive more than twice as long—up to 10 and a half weeks.

Interferon is a protein the body normally manufactures to ward off viral infection, much as it produces antibodies to fight bacteria and other non-viral organisms. But the body doesn't always produce enough, fast enough, to prevent disease. Scientists are debating the usefulness of extra interferon from outside in fighting viruses.

In a report in the August *JOURNAL OF THE NATIONAL CANCER INSTITUTE*, Dr. Ion Gresser and co-workers at the Institut de Recherches Scientifiques sur le Cancer, Villejuif, France, suggest that interferon injections prolong survival by inhibiting the rate at which Rauscher viruses multiply, thereby slowing the progress of the disease. "This hypothesis would imply that successive cycles of viral multiplication throughout the course of the disease contribute in some manner to the progressive

increase in the number of Rauscher cells." It is possible, Dr. Gresser says, to consider therapy directed against multiplication of the virus as well as against proliferation of already infected cells.

PHARMACOLOGY

HEW plans to recommend generics

Health, Education and Welfare Secretary Wilbur J. Cohen is expected, by the end of the year, to send Congress recommendations for the inclusion of prescription drugs in Medicare benefits. One of these recommendations, meant to keep the costs as low as possible, will be that Medicare prescriptions be filled with generic rather than brand name products whenever low-cost generics are available. Even so, the prospective cost is estimated at \$1 billion.

Answering long-standing claims that generic drugs are not always clinically equivalent to their brand name counterparts, the department's Task Force on Prescription Drugs recently issued a report concluding that the hazard has been grossly exaggerated (SN: 9/28, p. 310).

CANDICIDIN

Cholesterol levels lowered

Candicidin, a chemical first isolated in 1948, has been found to reduce cholesterol levels in rabbits, rats, mice and chicks. It has not yet been tried in humans.

Dr. Carl P. Schaffner of Rutgers University and Dr. Harry W. Gordon of Julius Schmid, Inc., report that candicidin binds to cholesterol in the stomach and bowel and causes it to be excreted before it can lodge in the body. Dr. Schaffner says it exerts what can best be described as a laxative effect on fats in the body.

In this respect it differs from other cholesterol-lowering drugs that affect some intermediary process in fat build-up rather than acting on the end product. Drs. Schaffner and Gordon presented their findings in Milan at the Third International Symposium on Drugs Affecting Lipid Metabolism.

ATMOSPHERIC NITROGEN

Claim for biological activity

Nitrogen, according to the books, is a biologically inert gas. Twenty years ago Russian scientist Mikhail Volsky, of Gorsky, doubted this proposition and now the U.S.S.R. Council of Ministers has officially ruled that Volsky was right: animals and higher plants are capable of assimilating atmospheric nitrogen.

Volsky, according to the Soviet news agency Novosti, incubated chick embryos in an atmosphere enriched with labeled nitrogen and, in thousands of experiments, showed that it was present in embryo tissues. The scientist postulates that nitrogen, essential for protein production, penetrates living tissue because it is captured by red blood cells containing fumaric, aspartic and other acids. In plants, he says, this role is played by chlorophyll.

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