BIOCHEMISTRY

Wound-Healing Process Linked to New Enzyme

➤ UNDERSTANDING OF HOW wounds heal is expected to be clearer as a result of the detection of a new enzyme in injured tissue, two Washington, D. C., scientists reported at the American Chemical Society's 146th national meeting.

Dr. John C. Houck of the Children's Hospital Research Foundation reported in Denver that necrotic tissue contains the new enzyme, which is capable of dissolving up to 50% of usually "insoluble" collagen, an important constituent of connective tissue. This is important because collagen is normally very resistant to the catalytic action of body enzymes.

Because of this resistance, scientists have had trouble accounting for the large amounts of collagen that the body dissolves and removes from dying tissue in wounded areas.

Dr. Houck found that to demonstrate the activity of the new enzyme, not yet isolated, it was necessary to treat extracts of necrotic tissue with another enzyme called pepsin. Other enzymes in the body must also be activated by pepsin, he said.

The only other enzyme that may be identical to the newly discovered substance is possibly one that Dr. Houck has recently discovered in the pancreas, he explained. However, it is possible that more than one new enzyme is involved in the activity observed in the present research.

It should now be possible to use the newly discovered enzyme to investigate the structure of collagen and to study the way collagen is dissolved by the body during wound-healing and the subsequent absorption of scar tissue, the biochemist suggested.

It is likely that when an injury occurs, the inflamed tissues release enzymes that activate the newly discovered enzyme and enable it to dissolve collagen, he believes.

Collaborating with Dr. Houck was E. R. Goldstein, a third-year medical student at Georgetown University Medical School in Washington.

• Science News Letter, 85:79 Feb. 1, 1964

BIOCHEMISTRY

Muscular Dystrophy Prevented in Lambs

➤ PREVENTION of muscular dystrophy in lambs by injection of the chemical element selenium points to help for humans.

A new theory explaining how selenium is both poisonous and necessary to life was reported at the American Chemical Society meeting in Denver by Dr. Carl W. Bonhorst of the University of Portland, Oreg.

An example of selenium's beneficial effects has been demonstrated through injecting the mother sheep with a small amount of the element before the birth of the lamb, thus preventing atrophy of the baby lamb's muscles.

Dr. Bonhorst's theory is that selenium acts as a scavenger in living systems. It ties up poisonous metals and prevents their harmful activities. However, when the concentration of the selenium reaches very high levels, it can begin to tie up metals vital to the life process itself, he said.

The new scavenger theory may not work on humans, but it appears to be well on the way. The theory was based on work with yeast and a one-celled animal known as *Tetrahymena pyriformis*. Dr. Bonhorst's experiments showed that a yeast cell gathered up 200 times its own volume of a selenium compound before it was poisoned and died.

Work by Dr. Klaus Schwarz of the National Institutes of Health, Bethesda, Md., was cited by Dr. Bonhorst to explain the poisonous action of selenium. Dr. Schwarz gave small quantities of the metal cadmium to rats and produced disease symptoms similar to those caused by the lack of selenium.

"Selenium is normally quite scarce," Dr. Bonhorst explained. "The cell that needs protection against traces of cadmium must have a good method for concentrating the selenium as a scavenger.

"When this cell is offered a hundred or a thousand times the usual amount of the scavenger, it takes on enough to tie up all the metal in sight—and kills itself."

• Science News Letter, 85:79 Feb. 1, 1964

Nature Note

Flying Squirrel

➤ A WHISTLED, birdlike "tseet" followed by a barely audible thump may indicate to the nighttime nature lover that there is a flying squirrel in the vicinity.

Somewhat reminiscent of another flying mammal, the bat, this squirrel scorns the light of day, preferring to glide from tree to tree in a dark forest. Nature has equipped this mammal with sharp nocturnal vision and a fold of loose, furred skin along his sides from front to hind legs.

By spreading his legs and stretching the skin taut, the squirrel can glide sometimes as far as 125 feet, depending on the height of the take-off point. Before landing, the animal manipulates his tail in order to land right-side up on the trunk of a tree or roof.

By day, the flying squirrel naps or rests in a hole or nest high in a treetop. Since the squirrel does not hibernate, winter wanderers in the woods who rap or scratch on the side of a tree full of woodpecker holes may see a sleepy flying squirrel poke his head out.

Flying squirrels usually feed on nuts, berries, insects and tree buds or shoots, but they occasionally will kill birds or eat bird eggs. This unusual squirrel can be found anywhere in the Northern Hemisphere, varying in length from slightly over seven inches to three feet.

The flying squirrel, genus *Glaucomys*, is found as far south as Honduras. The slightly larger northern flying squirrel frequents most of Canada and Alaska, south to California and New England. The southern flying squirrel can be found in the eastern states west to the Great Plains.

• Science News Letter, 85:79 Feb. 1, 1964