[S4-5] [4/19/2002(Friday) 12:00-12:25/Hall B]

Glycosaminoglycan-degrading Enzymes of *Bacteroides stercoris* HJ-15 - Purification of Heparinases and Chondroitinases -

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Bacteroides stercoris HJ-15, which is a human colon gram-negative anaerobe, degraded heparin acharan sulfate and chondroitin sulfates.

Recently we purified new five heparinases (one heparinase Ⅰ, three heparinase Ⅱ and one heparinase Ⅲ) in *Bacteroides stercoris* HJ-15 cultured in 100L of tryptic soy broth containing hepain by the combination of QAE-cellulose, DEAE cellulose, CM Sephadex C-50, hydroxyapatite and phosphocellulose. The best substrate of heparinase I was heparin, followed by heparian sulfate. The best substrate of three heparinase Ⅱ was acharan sulfate, followed by heparan sulfate and heparin. Among heparinase II, one is salt-inducible. The best substrate of heparinase III was heparan sulfate, followed by heparin. However, it did not degrade acharan sulfate. Based on these findings, substrate specificity studies employing new, structurally defined substrates, such as acharan sulfate and its derivatives suggest a new guideline for the classification of the heparinases.

Two novel chondroitinases, chondroitin ABC lyase and chondroitin AC lyase, were purified from *B. stercoris* HJ-15 by the combination of QAE-cellulose, DEAE cellulose, CM Sephadex C-50, hydroxyapatite, Sephacryl S-300 and phosphocellulose. Both purified *Bacteroidal* chondroitinases acted to the greatest extent on chondroitin sulfate A, to a lesser extent on chondroitin sulfate B and C. They did not act on heparin and heparan sulfate. These findings suggest that the biochemical properties of these purified chondroitinases are different from those of the previously purified chondroitinases.

Finally, we suggest that the physical and kinetic properties and specificity of these enzymes are useful in studying the structure of glycosaminoglycan and their biological activities.