

Analysis of Lysosomal Membrane Surface Modified by H₂O₂ and NH₄Cl Using X-ray Photoelectron Spectroscopy

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Lysosome, which is able to kill foreign substances in human body, cannot degrade the bacteria cell if the functional group of the cell wall is converted from N-acetylation to O-acylation. It means that specific functional groups on lysosomal membrane would affect the antimicrobial activity of lysosomes after recognizing invader microorganisms. Therefore, we have analyzed the surface modification of lysosomal membrane treated by H₂O₂ as an activator and NH₄Cl as an inhibitor, using X-ray photoelectron spectroscopy. When lysosome was treated by H₂O₂, the C1s peak were increased C-O and C-N component with binding energies of 286.7 and 285.0 eV in accordance with decreasing O-C=O component 288.1 with binding energies. On the other hand, the P2p peak at lysosome treated by NH₄Cl were increased P2O₅ or PO₄ with binding energy of 133.7 eV. Therefore, we found that some functional groups on the surface of lysosomal membrane were differentially modified by chemical stimulation.