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Identification and Biochemical Characterization of Two Phosphoproteins, p84 and p56, Which Are Associated With HSP90

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HSP90 is found in association with a variety of proteins including protein kinases and steroid hormone receptors and regulates their structure and function. Further, HSP90 is known to possess autophosphorylase and/or kinase activities, but the biological significance of these activities is not clear. In this study we have purified chick HSP90 by column chromatography and examined its *in vitro* autophosphorylation. Unexpectedly, HSP90 was not phosphorylated, but rather two proteins, p84 and p56, were highly phosphorylated. Immunoprecipitation using anti-HSP90, native gel electrophoresis and HPLC experiments revealed that the phsphoproteins exist in complexed with HSP90. These two proteins appeared to be phosphorylated in a divalent cation-dependent manner by different protein kinases and their phophorylation also regulated by the addition of exogeneous proteins to the reaction mixture. Further stuides on these HSP90-associated phosphoproteins will be helpful to the elucidation of HSP90 function in cells.

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Heat Shock Induces Morphological Changes and Actin Polymerization in K562 Cells

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Exposure of cultured cells to an elevated temperature causes a variety of significant alterations in cellular metabolism and morphology. In this study, K562 cells were exposed to heat shock at 43℃ for 90 min and followed by recovery at 37°C for up to 18 hrs and morphological changes were then examined. During recovery at 37°C for 3-4 hrs, the cells became elongated, while as the cells recovered for longer period, the morphology resumed the normal pattern. Interestingly, when the K562 cells were treated with heat shock at 43℃ for longer period (12-24 hrs) without receovery at 37°C, no significant change in morphology was observed, indicating that the transition from heat shock condition to normal condition is an important signal to alter this cellular morphology. Actin filament polymerization, protein synthesis, and protein phosphorylation were examined to elucidate the molecular mechanism underlying the heat shock-induced morphological changes in K562 cells.