

Cellular glutathione, heat shock protein HSP-70 and thermotolerance in HT29R cells

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The kinetics of development of thermotolerance, heat shock protein hsp-70 concentration changes and changes in intracellular reduced glutathione levels, (GSH), have been studied in HT29R cells after exposure of the cells to heat shock of 45°C for 10 min. GSH rises initially and then falls below control level 3-4 hr. post heat shock. Whilst these changes follow the delivery of heat shock, the kinetics of the changes suggest that GSH does not play a part in heat shock protein hsp-70 formation and the development of thermotolerance. Increases in hsp-70 concentration precede thermotolerance development and may be required for the increased resistance to hyperthermia noted in cells subjected to heat shock and subsequently to hyperthermic temperatures.