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Introduction

1.1 Initiation of protein synthesis

1.2 Regulation of initiation by eIF-2α kinases

1.2.1 HRI: The heme-regulated eIF-2α kinase or heme-regulated inhibitor (HRI)

1.2.1.A HRI protein

1.2.1.B HRI gene

1.2.1.C Expression of HRI

1.2.2 PKR: RNA-dependent protein kinase or double stranded RNA-activated inhibitor (DAI or dsl)

1.2.3 GCN2: General control nonderepressible 2 (GCN2) kinase

1.2.4 PERK/PEK: RNA-dependent protein kinase (PKR)-like ER kinase (PERK) or Pancreatic endoplasmic reticulum kinase (PEK)

1.2.5 BeK: eIF-2α kinase from Bombyx mori or BeK

1.3 Regulation of initiation of protein synthesis during various stresses

1.3.1 Expression of HRI during stress responses including anemia

1.3.2 Activation of HRI caused due to HRI-heat shock proteins (HSP) interaction
1.4 Relationship between apoptosis and eIF-2α kinases
1.5 The effect of heavy metals on biological systems and protein synthesis
1.6 The present study

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