An oncogenic role of eIF3e/INT6 in human breast cancer.

Altered expression of the eukaryotic translation initiation factor 3 (eIF3) subunit eIF3e/INT6 has been described in various types of human cancer, but the nature of its involvement in tumorigenesis is not yet clear. Using immunohistochemical analysis of 81 primary breast cancers, we found that high tumor grade correlated significantly with elevated cytoplasmic eIF3e level in epithelial tumor cells. Analysis of protein synthesis after siRNA-mediated knockdown in breast cancer cell lines indicated that eIF3e is not required for bulk translation. Microarray analysis of total and polysomal RNAs nonetheless identified distinct sets of mRNAs regulated either positively or negatively by eIF3e; functional classification of these revealed a marked enrichment of genes involved in cell proliferation, invasion and apoptosis. Validated mRNA targets regulated positively at the translational level by eIF3e included urokinase-type plasminogen activator and apoptotic regulator BCL-XL, whereas synthesis of proteins including the mitotic checkpoint component MAD2L1 was negatively regulated. Finally, eIF3e-depleted breast carcinoma cells showed reduced in vitro invasion and proliferation. Taken together, our study data suggest that eIF3e has a positive role in breast cancer progression. It regulates the translation, and in some cases abundance, of mRNAs involved in key aspects of cancer cell biology.
Zeitschriftentitel / Abkürzung: Oncogene
Jahr: 2010
Band: 29
Heft / Issue: 28
Seiten: 4080-9
Sprache: eng
Print-ISSN: 0950-9232
TUM Einrichtung:
  r Kinderkardiologie und angeborene Herzfehler
Occurences:
  - Einrichtungen > Fakultäten > Fakultät für Medizin > Kliniken und Institute > Lehr- und Forschungskooperationen mit den Kliniken und Instituten am Deutschen Herzzentrum > Klinik für Kinderkardiologie und angeborene Herzfehler (Prof. Hess) > 2010
entries: