

Non-translation initiation functions of eIF3g in breast cancer

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Translation Eukaryotic translation initiation factors (eIFs) are important for protein synthesis of both normal and malignant cells. Deregulated protein synthesis may promote cell growth, proliferation, invasion and metastasis which lead to the development and progression of cancer. As the largest and the most complicate eIF, eIF3 is the core protein complex which cooperates with other eIFs and plays an important role in the initiation of protein synthesis. EIF3 is composed of 13 subunits, and only subunits eIF3a, 3b, 3c, 3e, 3f and 3h are indispensable for the core function of eIF3, while other subunits may possess other functions than translation initiation. Aberrant expressions of eIF3 subunits in various tumors have been observed and nuclear localization of eIF3a, 3e and 3k have been reported. Recent studies showed that eIF3g also plays roles in the cytoskeleton network and caspase-mediated apoptosis. We previously found that eIF3g was significantly up-regulated in the multidrug resistant K562 leukemia cells (K562/ADR). In our current work, we found that eIF3g is also up-regulated in breast cancer cell that are multidrug resistant. We further investigated the nuclear distribution of eIF3g and identified nuclear proteins that may interact with eIF3g in breast cancer cells by co-immunoprecipitation and mass spectrometry, and confirmed by cross linking and confocal co-localization observation. These findings indicate that eIF3g also has non-translation initiation functions in breast cancer. (Sponsored by grant from National Natural Science Foundation of China 81172516)

Biography:

Jiang Cao obtained his PhD degree from Zhejiang Medical University (now Zhejiang University School of Medicine). He is currently working in Clinical Research Center, the 2nd Affiliated Hospital, Zhejiang University School of Medicine. His research focuses on the molecular mechanisms involved in development and progression of cancer and has published more than 40 papers in reputed journals.