Project

Lung cancer is one of the most prevalent and lethal cancers in the world causing one million deaths per year. The major histological types of lung cancer are non-small cell lung cancers representing approximately 75 - 80 % of all lung cancers including squamous cell lung carcinomas, adenocarcinoma, large cell carcinoma and mixed types. The main risk factor of lung cancer development remains tabaco smoke causing various genetic alterations including losses and gains of chromosomes or chromosome fragments. This project focuses on gene amplifications in squamous cell lung carcinomas. Gene amplifications are frequently found in human tumors but not in normal cells. Recently we identified an amplicon at chromosome 3q26-27 in 30 % of squamous cell lung carcinoma. We determined the amplification frequency and the expression of genes that are mapping in the amplicon. Among other genes we found an amplification and an overexpression of the eukaryotic translation initiation factor eIF4G that maps to 3q26. We also found antibodies against eIF4G in serum of patients with squamous cell lung carcinoma. Our future studies will further analyze eIF4G and other components of the translation initiation complex in squamous cell lung carcinomas in comparison to other lung cancer subtypes. Components of the translation initiation complex has frequently been associated with the development of human cancers.

To arrive a better understanding of the role of e4FG in the development of squamous cell lung carcinoma the major aims are as follows:

- Immunohistochemical and biochemical expression analysis of the translation initiation factor eI4FG and squamous cell lung carcinoma.
- Expression analysis of further components of the translation initiation factor complex in squamous cell lung carcinoma.
- Identification of further antigens causing an immunosponse in patients with squamous cell lung carcinoma.
- Identification of amplified genes with also include 4 immunogenic antigenses in squamous cell lung carcinoma.
- mRNA expression profiling of genes mapping to the amplicon at 3q26-27.

Coworkers

Petra Leidinger

Past Coworkers

Dipl.-Biol. Isabel Diesinger
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Publications

Diesinger I, Bauer C, Brass N, Schaefers HJ, Comtesse N, Sybrecht G, Meese E.

Bauer C, Brass N, Diesinger I, Kayser K, Grasser FA, Meese E.

Bauer C, Diesinger I, Brass N, Steinhart H, Iro H, Meese EU.

Racz A, Brass N, Hofer M, Sybrecht GW, Remberger K, Meese EU.

Racz A, Brass N, Heckel D, Pahl S, Remberger K, Meese E.

Brass N, Racz A, Bauer C, Heckel D, Sybrecht G, Meese E.

Brass N, Heckel D, Meese E.

Brass N, Racz A, Heckel D, Remberger K, Sybrecht GW, Meese EU.

Brass N, Heckel D, Sahin U, Pfreundschuh M, Sybrecht GW, Meese E.

Brass N, Ukena I, Remberger K, Mack U, Sybrecht GW, Meese EU.
Abstracts

"Role of Amplified Genes in the Production of Autoantibodies"

"Expression of Eukaryotic Translation Initiation Factor eIF4-Gamma in Head and Neck Cancer".

"Expression of eukaryotic translation initiation factor eIF4-gamma in squamous cell carcinoma of the head and neck".
7th European Workshop on Cytogenetics and Molecular Genetics of Human Solid Tumours, Edinburgh Conference Centre Heriot-Watt University, Edinburgh, September 2000.