Cytology

The following tests are available:

- **Gynecological exfoliative cytopathology**

Indication: screening examination (early detection of cancer), post treatment, curative

Material: a) Genital smears (Pap Smears) must be fixed immediately after smear distribution on the slides with cytospray or isopropanol (96%).

b) Thin layer cytology in liquid medium. The brush is transferred into the medium, turned a few times to rinse the cells out of the brush. Workup with the AutoCyte = Prep Stain Method.

c) Mamma secretions must be fixed directly with cytospray or isopropanol spray (96%).

d) Send aspirates (mamma, pleura, ascites, and cysts) in closed sterile vials

e) Transfer fine needle aspirates on slides, if possible fix one smear, leave another unfixed; label the smears accordingly. If no fixation is possible, please send in the smears in a non fixed state.

General advice regarding the cytological material:

Slides: Please indicate the patient's name on slides and slide boxes on the request! (Mandatory for identification!) Fixation with alcohol (96%) or spraying fixative for Papanicolaou (cytospray), HE and other stainings or air-dryed for the Pappenheim staining.

TAT: specialized collaborating laboratory, 3-7 days

Method: staining according to Papanicoulaou and microscopy

- **Thin Layer Cytopathology (Thin Prep)**

General:

Thin layer cytopathology is a microscopic examination method, which only shows a monolayer of cells. The advantage of this method is its insensitivity to contaminations, cell overlaying and artefacts caused by inflammations (e.g. mucus etc.).

Indication: clarification of pre-results which are difficult to be assessed, pathological PAP reports during pregnancy.

Material: CytoBrush, special sample container (ThinPrep®) with brush (CytoBrush®) and medium solution for the removal of cell material from the endocervix, but also

from vagina, vulva etc.

Preanalytics: The medium can be stored over night in the refrigerator. Do not freeze

TAT: 3-7 days , FML.

Note: In case of suspicion of HPV infection, DNA screening (PCR) with additional genotyping can be carried out on the remaining cells without admitting the patient again for a new smear. Other DNA tests (Neisseria Gonorrhoe or Chlamydia Trachomatis) can be performed as well from the same vial.

- **DNA Cytometry**

General:

DNA cytometry increases sensitivity and specificity of the cytological diagnosis. With the support of newer cytological screening software the incidence of cervical carcinoma has been reduced significantly. Using additional markers in order to confirm a transformation to tumorous cells is even more sensitive: molecular detection of E6/E7 oncogene in RNA of HPVinfected cells; cytometric determination of nucleic acid content of cytologically suspicious cells.

Basics of cytometry:

The nucleic acid content in the nucleus of suspicious cells can be determined by standardized staining and quantitative microscopic photometry. The intensity of the nucleus staining allows a statement on the polyploidy level of the examined cells. Tumor cells are known to have a higher polyploidy level than normal cells. Normal cells, e.g. cervical epithelium cells are diploid (2c). Cervical cells during division (apoptosis, basal cell layer) are tetraploid (4c). HPV-infected cells often are octaploid (8c). Tumor cells of the cervical carcinoma show aneuploidy with more than 9 chromosome sets (>9c). The usage of cytometry software has increased the stringency of the method significantly.

Indication: Identification of precancerosis among the (especially epithelial) dysplasias and objective and valid grading of the malignant potential of different tumors (= malignancy grading).

Material: smear with fixation (as for screening examination according to Papanicolaou)

Method: microscopic photometry with software supported analysis

TAT: 7-10 days*

- **Sputum cytopathology**

General:

Sputum cytopathology is specific and a non invasive efficient diagnostics method. The accuracy of detecting malignant processes in sputum cytology went out of focus. However the sensitivity is up to 70 % for detecting bronchial cancer. The specificity of this method reaches nearly 100 %. These results, however, are only applicable if appropriate material is obtained.

Existing tumor cells are commonly found in sputum obtained from the lower respiratory tract. Saliva is not suitable as material. The sensitivity increases with the number of sputum samples. In case of negative results and persisting clinical suspicion one or two more sputum samples should be obtained.

Indication: early detection of bronchial carcinoma.

Material: sputum.

Method: The medium can be stored over night in the refrigerator. Do not freeze.

Obtaining the sputum: brush your teeth thoroughly immediately after getting up, rinse your mouth with water. Then inhale deeply and cough up the deeply located mucus. The sputum is collected in a sputum container and sent to the lab with an accompanying note. If required the sputum can be obtained with secretolytics.

TAT: Specialized collaborating laboratory: 3-7 days

- **Further cytopathological diagnostics**

Material: Effusion cytology: synovial fluid, pleural fluid, ascitic fluid, cystic lesions etc.

Prostate gland: fine needle biopsy (FNB), aspirate

Thyroid gland: fine needle biopsy (FNB), aspirate

Bronchioalveolar lavage (BAL)

Smears from cheeks and tongue

TAT: Specialized collaborating laboratory: 3-7 days

For complete list of laboratory test offered at Freiburg Medical Laboratory, please visit http://www.fml-dubai.com/parameter-listings/