

Information for Applicants for Access to Materials and/or Information from the CTB

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Project Description

Please provide the title and a short summary of the proposed research on the samples you are requesting from the CTB. Sufficient information should be provided to enable the CTB to determine the scientific validity of your study. Please fully justify the number and type of samples requested and address ALL sections below.

Title *

A comprehensive analysis to find out molecular biomarker(s) of radiation exposure and grade of malignancy in human post-Chernobyl PTC

Project summary * Turn on the "Upload file" switch below if you wish to provide summary in a pdf or word file (max 10,000 chars)

The development of papillary thyroid cancer (PTC), similar to that of most other human malignancies, is likely to comprise a multistep and multihit process. It is quite probable that mutational events initiating, promoting, and/or driving the tumor progression are quite similar in the sporadic and radiation-induced PTC. Along with this, one may expect there may be unidentified to date molecular distinctive features peculiar to thyroid cancers of different etiology. Thus, a comparative study of various molecular characteristics in the two groups of PTC may provide additional information for the determination of the molecular signature of radiation-induced thyroid cancerogenesis.

Overview and rationale *

In the proposed project we intend to study the following molecular characteristics of the DNA extracted from normal and tumor tissue of radiation-induced PTCs: i) relative content of mtDNA and number of large-scale deletions in mtDNA; ii) prevalence of gene mutations of MAPK signal molecules, including the Ras, BRAF, Raf-1 and MEK genes; and iii) distribution of the codon 72 allelic variants of the TP53.

Aim(s) *Please clearly state the aim(s) of your project

After the data are obtained, we will perform a comprehensive univariate and multivariate statistical analysis against already available results of examination of sporadic PTC in order to identify molecular parameter(s) specific to radiation-induced PTC.

Experience of group carrying out analysis * Please provide information to indicate that your research group has experience in the techniques you intend to use, either by use of preliminary data from other work carried out in your group or by providing references to publications from your group that are relevant to this application.

experience

Methods * Please detail the methods you intend to use, study design, analysis, planned publications and presentations, and data sharing plan

methods

