

**DEPARTMENT OF RADIOTHERAPY AND ONCOLOGY**  
**MEDICAL SCHOOL, DEMOCRITUS UNIVERSITY OF THRACE**  
**ALEXANDROUPOLIS - GREECE**

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### **I. Introduction**

The Department of Radiotherapy and Oncology, Medical School, Democritus University of Thrace, develops teaching, research and clinical activities in the field of cancer therapy with radiation and its combination with chemotherapy and novel biological targeting agents and in the field of molecular radio-biology and radio-pathology.

The clinical department is established in the University General Hospital of Alexandroupolis, (bldg B', -2 level). This offers therapy to cancer patients residing in the Eastern Macedonia and Thrace, covering a population of more than 600.000 people.

In the department, there are employed physicians specialized in radiation oncology, cancer nurses, radiographers and radiation physicists. Post-doctoral scientist and PhD / MSc students are also incorporated to sustain research activities in the clinical and experimental radio-biology and radio-pathology. Undergraduate students of molecular biology are also accepted to work on specific projects, to elaborate their thesis for the obtaining of their diplomas. Cancer and normal cell cultures and xenografts are available to study cellular biology and response to radiation using immunohistochemistry, western blotting, RT-PCR and other techniques.

### **II. Units and Laboratories:**

1. Clinical Unit for the administration of chemotherapy and targeted agents
2. Consultation area
3. Linear Accelerator Unit (6-18MV)
4. Cobalt 60 Unit
5. Brachytherapy Unit (intracavitary and interstitial radiotherapy; HDR)
6. Simulation and Planning Unit
7. Clinico-Laboratory Unit of Radio-biology and Radio-pathology

### **III. Teaching for Medical Students**

1. Oncology (compulsory subject)
2. Medical care of patients exposed to radiation (choice subject)

#### **IV. Research Activities**

##### **1. Clinical Research**

- Fractionation and Acceleration of radiotherapy
- Radio-chemotherapy
- Combination of radiotherapy with chemotherapy and targeted agents

##### **2. Translational Research**

In collaboration with the laboratory of Pathology and other labs of the Democritus University of Thrace, large scale translational work is conducted focusing on the role of angiogenesis, hypoxia, autophagy and tumor metabolism on the post-operative outcome of cancer patients and the responsiveness of tumors to radiotherapy and chemotherapy.

##### **3. Basic Research**

- The role of death pathways (apoptosis, autophagy and necrosis) in the response of tumors to radiotherapy (cell lines and xenografts)
- Toxicity of normal tissues exposed to ionizing radiation and cytoprotection agents and policies

#### **V. Collaboration with the University of Oxford, UK**

Long standing collaboration with the University of Oxford (Adrian L. Harris, Professor of Medical Oncology and Director of the CR UK Molecular Oncology Laboratory IMM, and Kevin C. Gatter, Professor of Pathology, Director of the Nuffield Department of Cellular Science) in the field of translational research