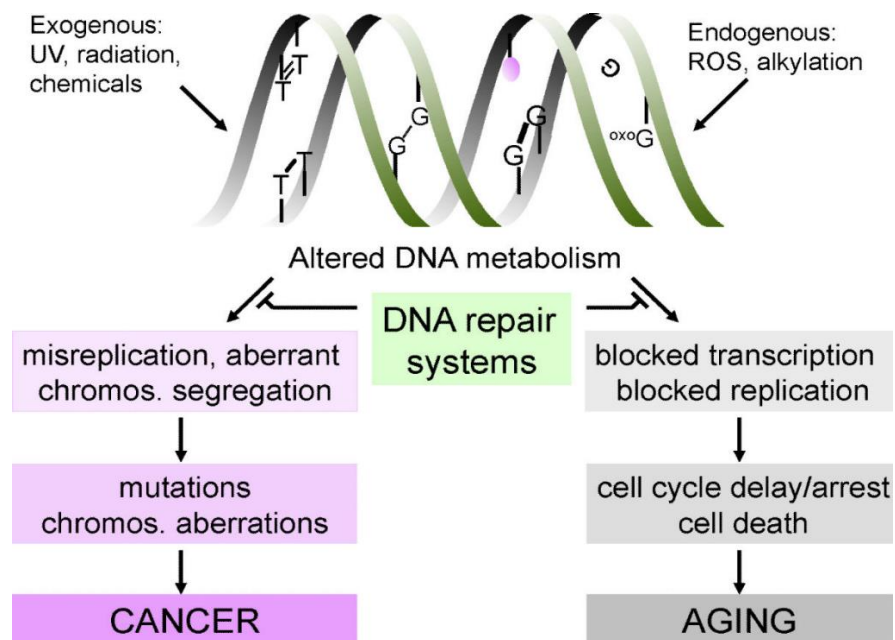


DNA REPAIR IN HEALTH AND DISEASE

This course will examine the types of damage that occur to DNA both endogenously and due to chemical and physical agents and the mutagenic and carcinogenic potential of this damage. The basic mechanisms by which damage to DNA induced by these agents is repaired, such as excision repair, mismatch repair, and DNA double-strand break repair will be examined as well as how DNA damage can be tolerated and the functional consequences of this process. Modulation of the DNA damage response by tumor viruses and the role of nuclear architecture and structural proteins in DNA repair will be discussed. Genetic diseases with defective DNA repair such as xeroderma pigmentosum, Fanconi anemia, ataxia telangiectasia and Cockayne's syndrome will be discussed as well as the role the DNA damage response plays in tumor responses to radiation and chemotherapy. In addition, the role defective DNA repair mechanisms play in cancer development and aging will be examined. This course will consist of mainly lectures accompanied by short student presentations. Students will be graded on their oral presentation, which will include a short power point presentation, and a written exam.



DNA REPAIR IN HEALTH AND DISEASE

Directed by Dr. Muriel Lambert

Schedule of Lectures and Presentations - 2022

Mondays and Wednesdays, 4:00-5:30 pm

<u>DATE</u>	<u>TOPIC</u>	<u>SPEAKER</u>
January 12	Sources and Types of Endogenous and Exogenous DNA Damage Cellular Response to DNA Damage by Reversal of DNA Damage Overview of Student Presentations	Dr. M. Lambert
January 19	Base Excision Repair and Nucleotide Excision Repair and the Consequences of Defects in these Pathways Cellular Response to DNA Damage Occurring during DNA Replication – Translesion DNA Synthesis	Dr. M. Lambert
January 24	Mismatch Repair, Repair of Double-strand Breaks, Repair of DNA Interstrand Cross-links and Consequences of Defects in these Pathways Methods of Detecting DNA Repair	Dr. M. Lambert
January 26	Modulation of the DNA Damage Response by Tumor Viruses Role of Nuclear Architecture and Structural Proteins in DNA Repair	Dr. M. Lambert
January 31	No Lecture	
February 2	No Lecture	

February 7	Genetic Diseases with Defective DNA Repair I - Xeroderma pigmentosum, Fanconi anemia	Dr. M. Lambert
February 9	Genetic Diseases with Defective DNA Repair II - Ataxia telangiectasia, Cockayne's Syndrome, Trichothiodystrophy, Bloom's Syndrome	Dr. M. Lambert
February 14	The DNA Damage Response: Its Role In Tumor Responses to Radiation and Chemotherapy DNA Damage and Aging	Dr. M. Lambert
February 16	Presentations	Students
February 21	Presentations	Students
February 23	Presentations	Students
February 28	Final Exam	