

VIROLOGY AND GENE THERAPY

VGT 5300s. GENE THERAPY LECTURE COURSE. (1 cr, A-F) Russell

After attending this course the student will have gained an appreciation of the broad potential scope of gene therapy and should understand how to develop a gene based therapeutic from an idea to a validated product. Various gene therapy strategies will be considered in relation to a broad spectrum of human diseases illustrating how genes can be used for gene replacement, tissue engineering, destruction of unwanted tissues, or immune stimulation. Stages in the development of gene-based drugs will be studied from vector design through preclinical proof of efficacy, clinical protocol development, product manufacture, pharmacology and toxicology testing, analysis of clinical trial outcomes, regulatory affairs, patenting and partnering with industry.

VGT 5500s. FROM VIRUSES TO VECTORS LECTURE COURSE. (1 cr; A-F) Vile

This course will cover the structure of viruses from which vectors are commonly derived and will describe the modifications made to the wild-type vectors which ensures the production of safe, efficient, targeted vectors for gene therapy.

VGT 5600s. MOLECULAR VIROLOGY LECTURE COURSE. (1 cr; A-F) Cattaneo

We highlight unifying principles emerging from the study of animal viruses. Using selected examples we illustrate virus structure, cell entry and receptors, replication of retroviruses, DNA viruses and riboviruses, transcription and RNA processing, translation and intracellular transport, particle assembly and cell escape. We discuss which questions are still outstanding and introduce emerging viruses.

VGT 8740f,w,s. VIRUSES AND VECTORS JOURNAL CLUB. (1 cr/yr; A-F) Cattaneo

Discussion of recent advances in the fields of virology and gene therapy. Students, postdocs and staff will present recently published papers that are of general interest to the fields. Emphasis will be on the development of new vectors for gene delivery and on cytoreductive therapy. *Register in fall quarter only (1 cr./year). Attendance required fall, winter and spring.*

VGT 8745f,w,s. CURRENT TOPICS IN VIROLOGY AND GENE THERAPY. (1 cr; A-F) Russell

This is a weekly seminar course in which visiting seminar speakers alternate with Mayo investigators. The format is a one-hour seminar in which the presenter gives a detailed account of their own gene therapy research followed by a lively question and answer session. *Register in fall quarter only (1 cr./year). Attendance required fall, winter and spring.*

VGT 8884s. VIRAL DISEASE TUTORIAL. (2 cr; offered odd years beginning 2007; A-F) Poeschla

Virus pathology and disease tutorial. Major viruses and their molecular biology, pathogenesis and clinical features, emerging pathogens, therapeutic strategies. Important viral infections₁ will be covered; emphasis will also be placed on emerging viruses of strong topical or emerging interest₂. Structure: 11-12 sessions, meeting weekly for about two hours. Discussion will center on important papers after introduction to topic by faculty. (1) e.g., cytomegalovirus, Ebola, EBV, dengue & yellow fever, hepatitis C, HIV, herpes simplex 1 and 2, influenza, lassa & other arenaviruses, measles and mumps, RSV, papillomaviruses, rhinoviruses, smallpox, viral diagnosis. (2) e.g., avian influenza, Nipah, SARS, Sin Nombre (Hanta) virus, West Nile virus. The (probably) nonviral prion diseases may also be covered.

VGT 8886s. MOLECULAR VIROLOGY TUTORIAL. (2 cr; A-F) Federspiel

This tutorial is a companion to the Molecular Virology course. It deepens the subjects illustrated in the lectures. Publications that have contributed in shaping the field or have identified new principles will be introduced by staff members and presented by the students.

VGT 8888s. GENE THERAPY TUTORIAL. (2 cr; A-F) Simari

The major goal of this tutorial is to develop a broad understanding of the field of clinical gene transfer and therapy. Tutorials will range from the scientific and biological aspects of gene vectors and safety to the conduct and regulatory issues of clinical gene transfer trials. A variety of instructors will discuss pertinent questions involving the development and practice of ongoing clinical trials. These trials will include those that address infectious disease, malignancies, and cardiovascular disease.

Research

VGT 8890f,w,s,su. RESEARCH IN VIROLOGY AND GENE THERAPY. (S-N) Staff
Graduate thesis research for Ph.D. students under supervision of staff.