Abstract:
Transcriptional regulation by gene- and cell-specific DNA-binding factors underlies key events in development, cell growth and differentiation and cancer. However, their functions on specific genes depend upon interactions with diverse co-activators and corepressors. Coactivators include both chromatin remodeling/histone modifying factors (e.g., the p300/CBP histone acetyl-transferases and the SET1/MLL H3K4 methyl-transferases) and other factors (e.g., Mediator, TAFs) that facilitate more direct communication between enhancer-bound regulatory factors and the general transcription machinery. Emphasizing both biochemical and cell-based studies, including functions of various co-activators, novel aspects of the mechanism of action of leukemic fusion proteins (AML1-ETO and/or E2A-PBX1) as well as the role of a B cell specific co-activator (OCA-B) in germinal center B cell-derived lymphomas will be discussed.

Biosketch:
Robert G. Roeder is currently the Arnold and Mabel Beckman Professor and Head of the Laboratory of Biochemistry and Molecular Biology at The Rockefeller University. He was previously the James S. McDonnell Professor of Biochemical Genetics at Washington University School of Medicine. For over 45 years he has pioneered biochemical studies of transcriptional regulatory mechanisms in animal cells. These include discovery and characterization of RNA polymerases I, II and III, cognate classes of initiation factors, the prototype transcriptional activator in eukaryotes, and a variety of ubiquitous and tissue-specific coactivators. Current studies focus on transcriptional regulation through diverse coactivators that include chromatin modifying factors. Notable awards include election to the U.S. National Academy of Sciences, the NAS-US Steel Award in Molecular Biology, the General Motors Cancer Research Foundation Alfred P. Sloan Prize, the Louisa Gross Horwitz Prize, the Gairdner Foundation International Award, the ASBMB Merck and Herbert Tabor Awards, the Albert Lasker Award in Basic Medical Research, the Salk Medal for Scientific Excellence and the Albany Medical Center Prize in Medicine and Biomedical Research.