**Molecular Structure of Medicines**

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John Wagner’s pioneering research described how solid oral formulations/medicines are absorbed into the blood stream. A key step in this process is the breakdown of the solid state structure of the drug allowing it to dissolve and be transported into the blood. Therefore, this seminar will address several issues related to the solid state structure of drugs in medicines. Tyrosine kinase inhibitors are important new orally administered anticancer drugs. These drugs are poorly bioavailable and their absorption is problematic. Approaches to improving their absorption by breaking down their solid state structure will be described. A second section of the seminar will address the preparation and structure of solid state formulations that deter abuse of opioid medications. Emphasis will be placed on PEO-based formulations and the failure modes of these formulations. Finally, approaches to enabling the manufacture of solid oral formulations of medicines in Africa by Africans will be discussed.