

## **Afinitor**

Brian Schaeffer  
Biomedical Engineering  
University of Rhode Island

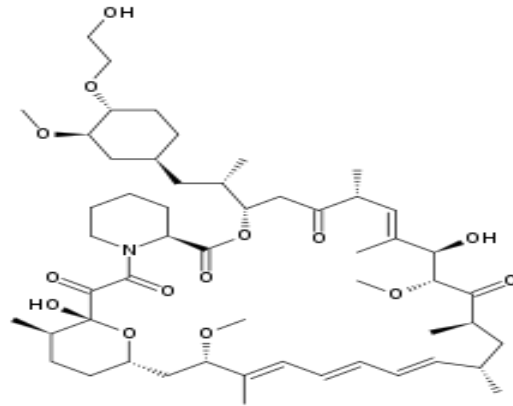
As of March 31, 2009, the FDA has approved everolimus as the newest cancer treatment for renal cancer. Novartis will package it as Afinitor. The drug does not cure the disease, but is indicated to slow the growth of tumors in affected patients.

Currently, there is no cure for renal cancer. Even normal cancer treatments are less effective on renal cancer. It is very common for radiation therapy and chemotherapy to be only slightly effective, if at all. Many patients who are not diagnosed in time have the kidney removed as an initial treatment because very few options are available.

If the kidney is removed before the cancer has spread, the five year survival rate is 60-70%, but if it has already spread, this number decreased greatly.

Kinase inhibitors are not a new class of drug. Many inhibitors are used in other diseases to slow processes in cells to slow or stop diseases from spreading. More generally used for this cancer, Nexavar and Sutent are inhibitors that contact multiple parts of the cell to stop communication, but are not as accurate and therefore less effective.

Everolimus is an inhibitor, which targets an exact protein in the cell. Mammalian target of rapamycin or mTOR is the protein of concern. It is thought that this protein is linked to many other cancers which could be a main cause in spreading and tumor growth. Blocking this protein action can slow growth, division and the metabolism of tumor cells.



Afinitor will be the second drug approved to work in this way. But it is the first to be distributed as an oral tablet, taken once daily. Torisel is used for a similar result, but is a weekly shot given by a professional, making it more expensive, and less accessible for patients. Afinitor will be used as a secondary treatment to Nexavar when first released, proof of treatment on Nexavar will be needed to obtain the drug. Tests show that Afinitor will slow or stop tumor growth for at least 5 months, which will allow doctors to treat the cancer, or be more effective removing the kidney if necessary.

Side effects of Afinitor include mouth inflammation, diarrhea, shortness of breath and coughing. These symptoms were seen by around 20 % of patients. Close to half of the test group showed anemia and low white blood cell count after taking the drug.

### **References-**

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