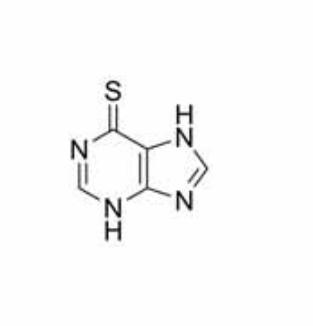
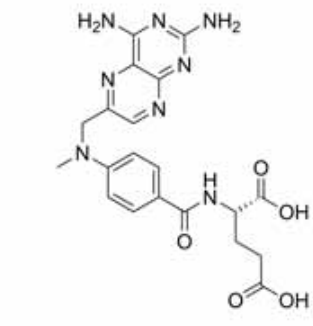
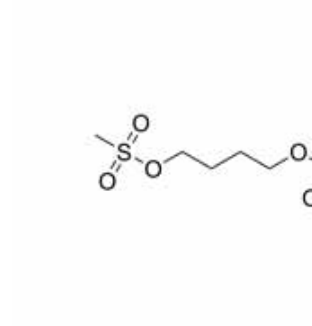
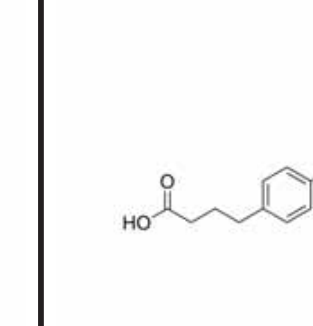
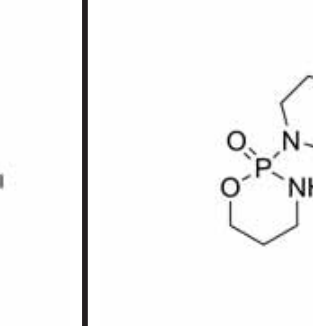
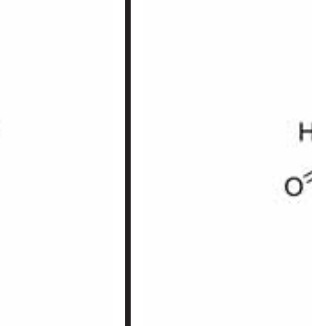
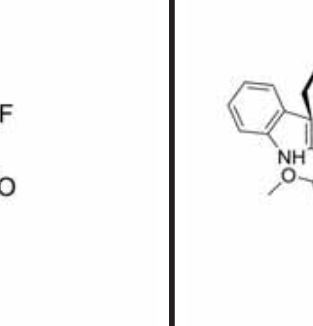
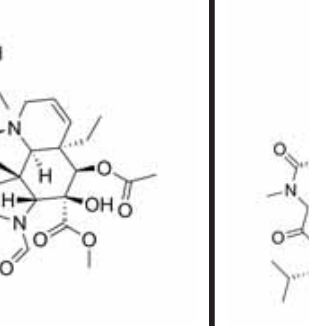
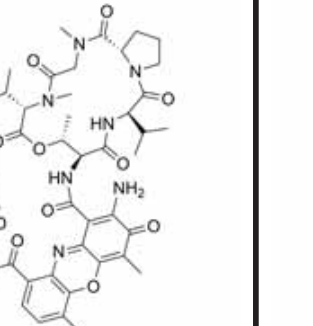
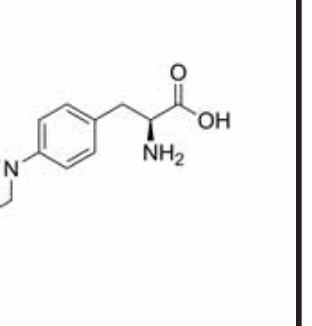
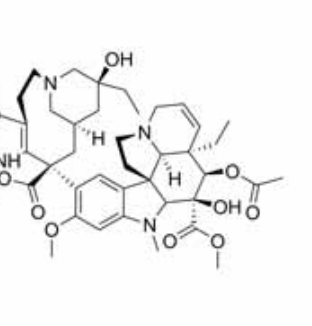
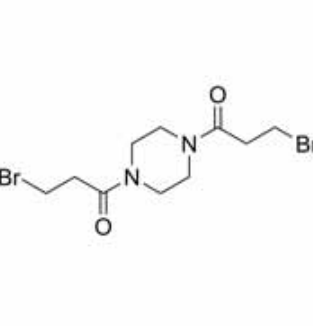
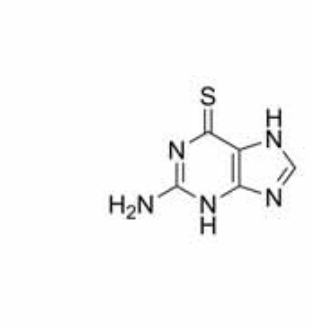
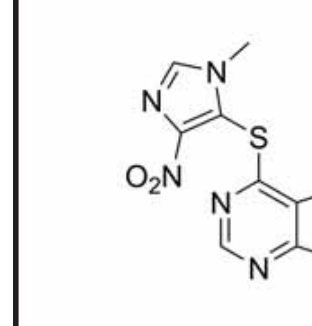
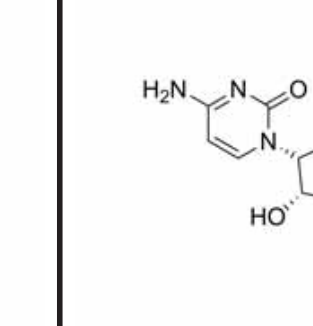
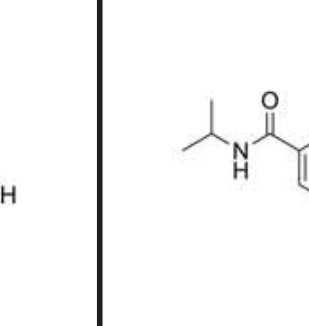
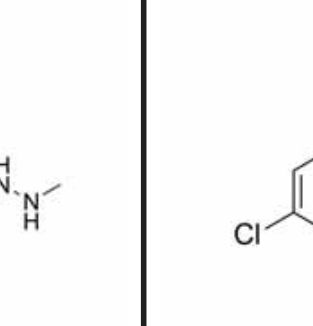
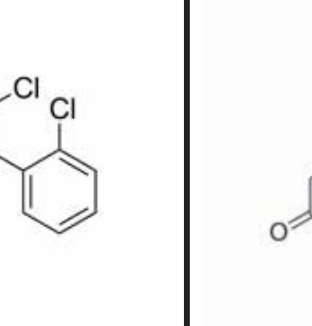
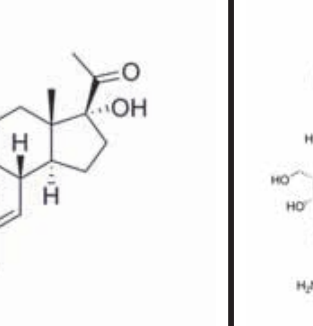
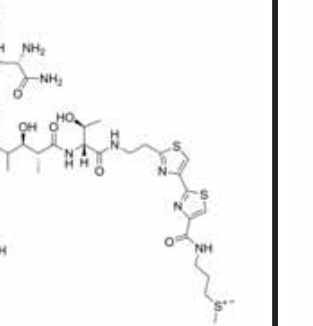
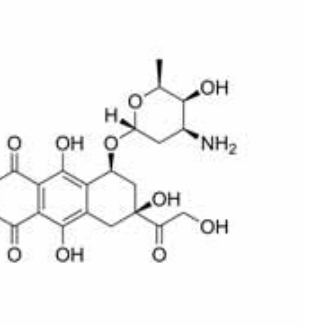
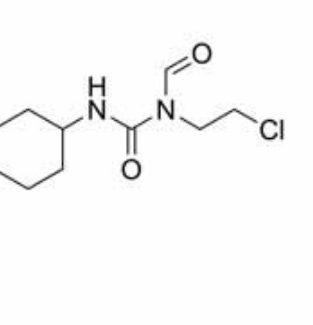
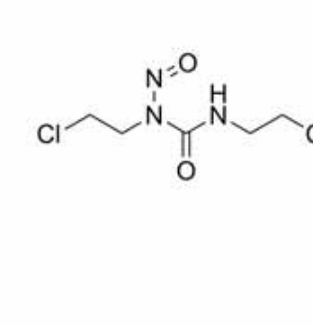
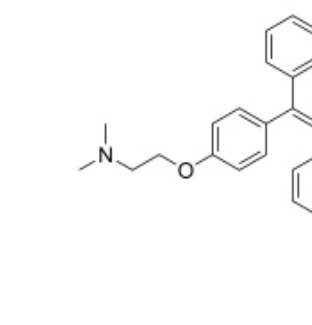
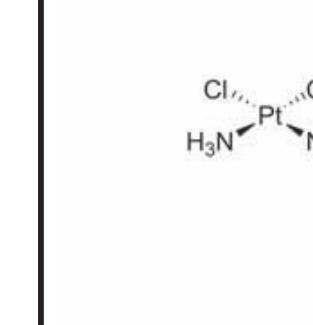
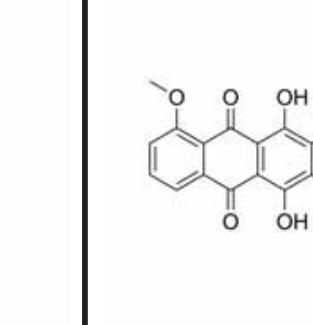
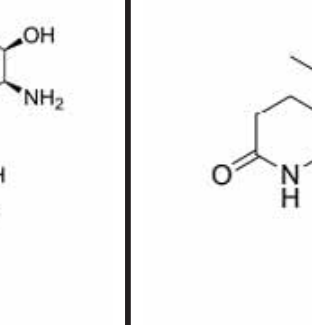
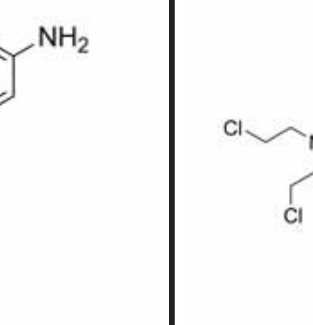
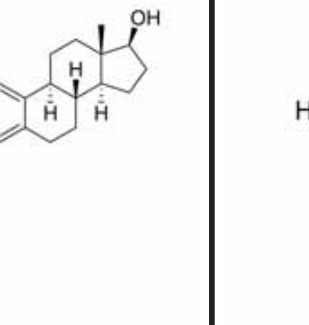
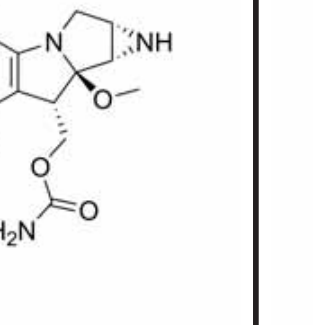
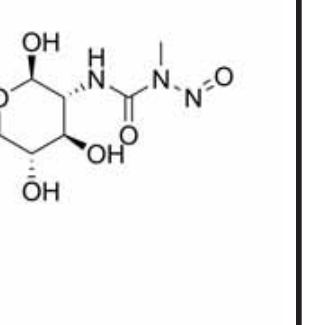
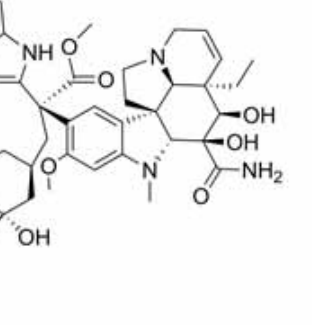
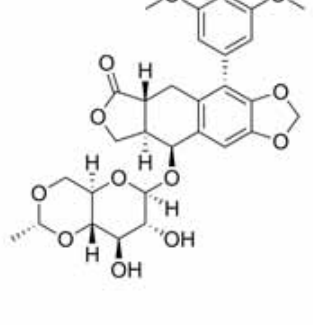
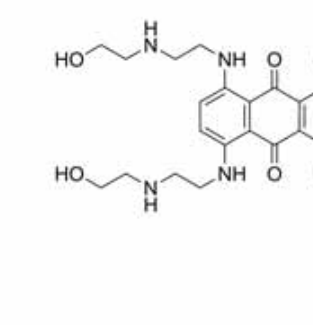
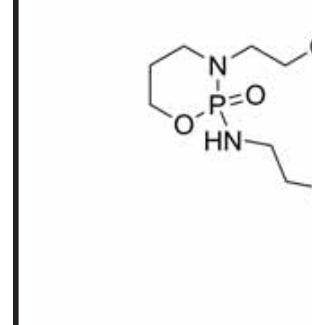
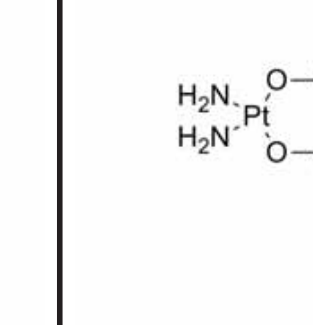
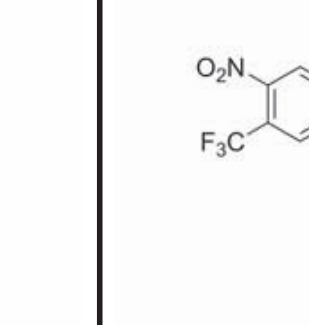
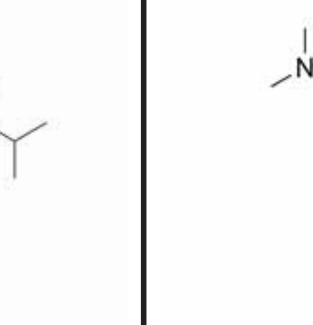
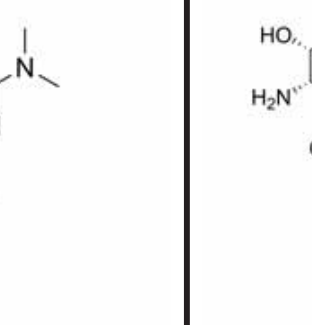
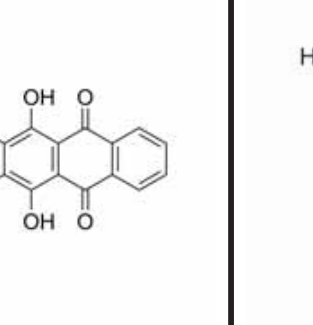
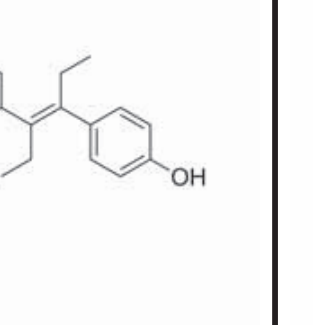
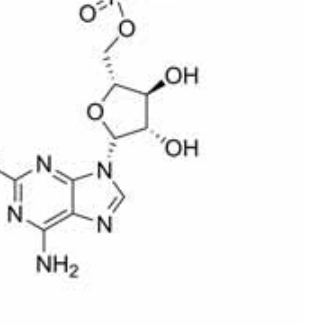
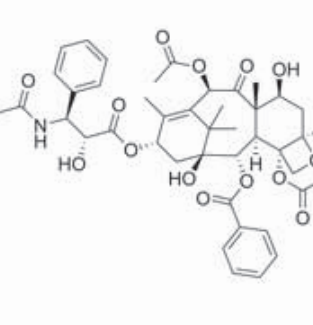
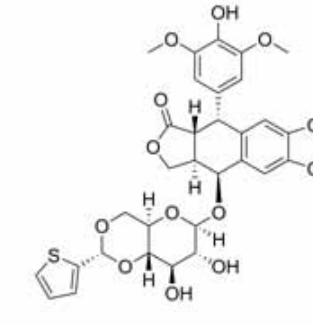
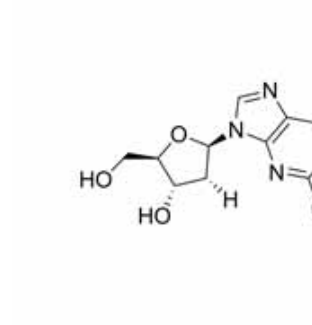
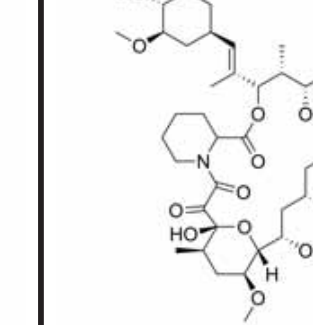
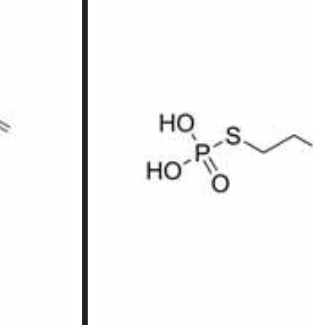
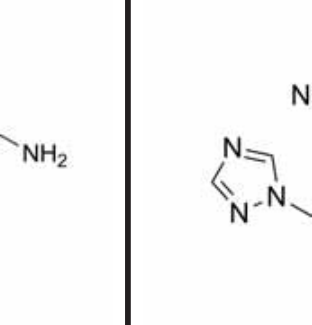
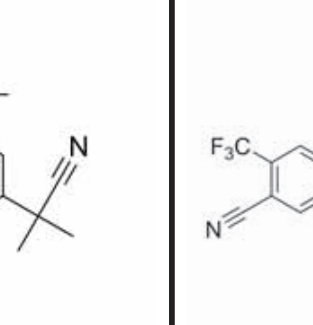
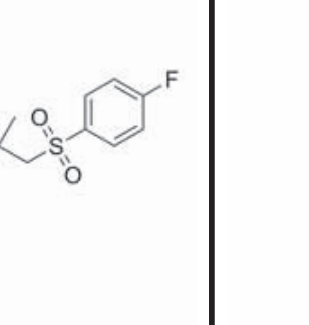
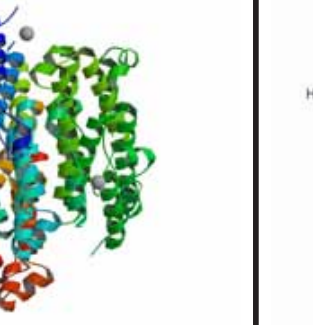
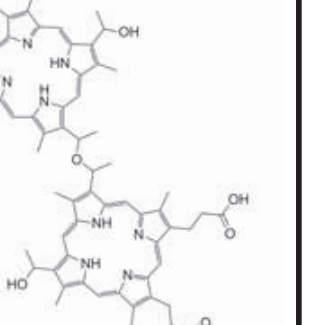

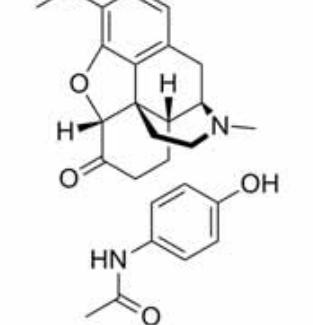
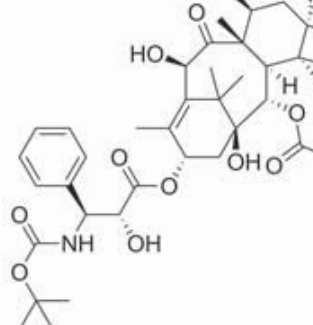
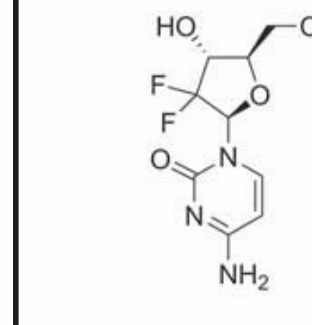
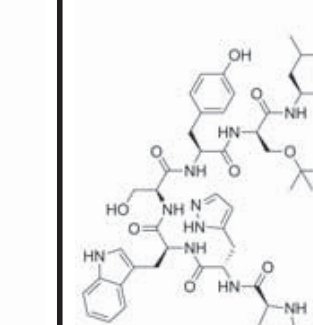
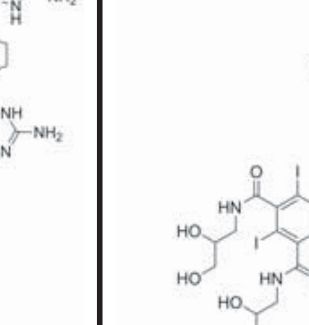
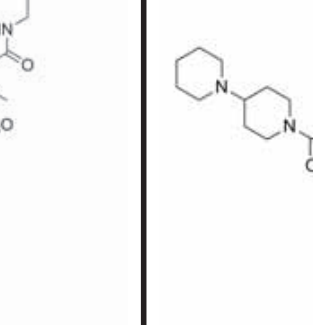
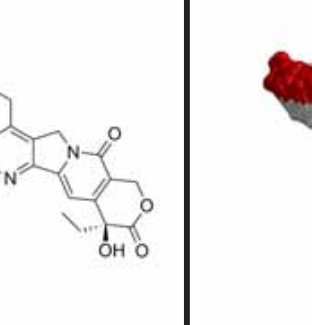
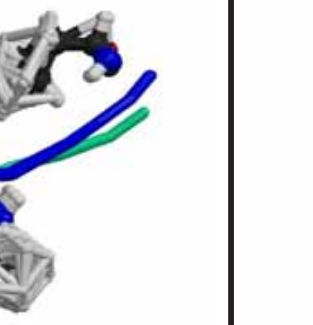
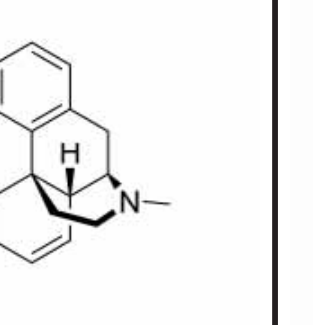
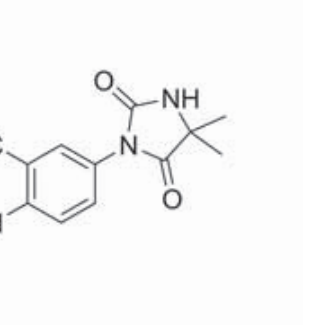
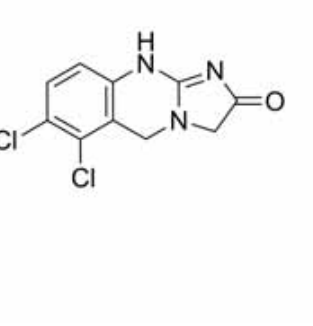
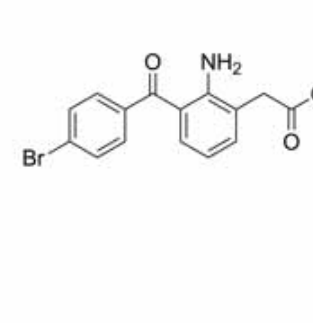
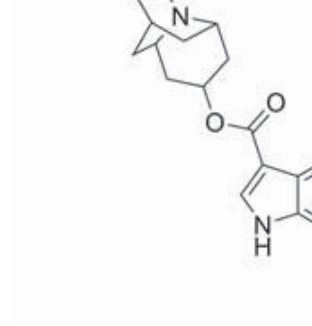
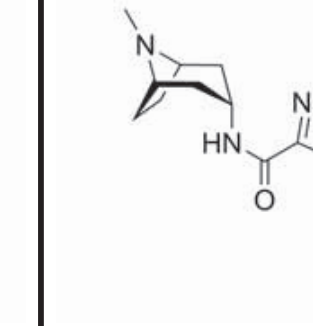
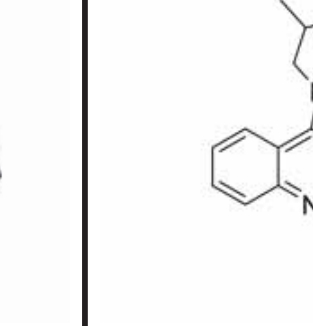
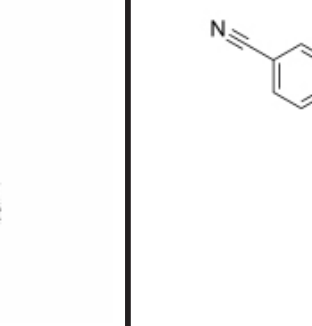
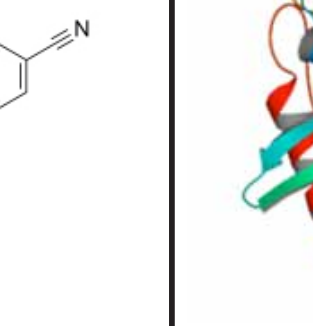
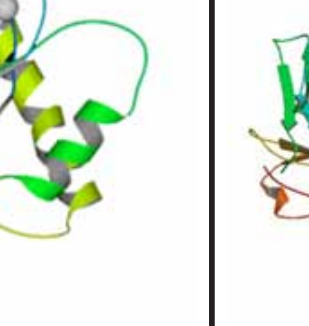
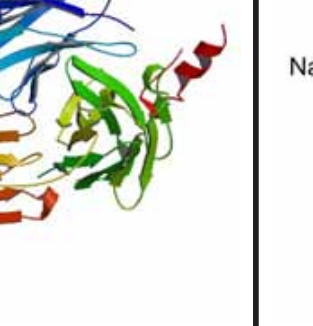
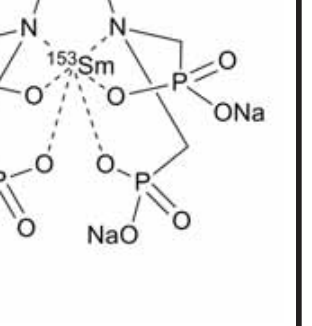
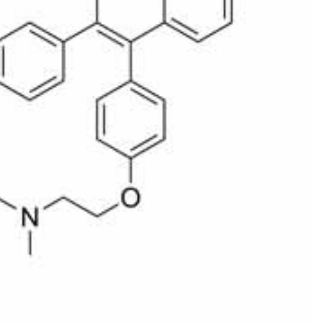

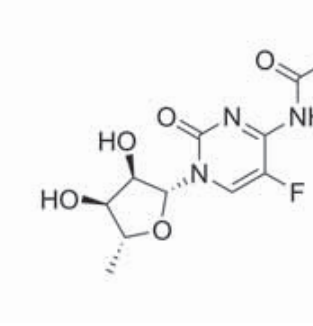
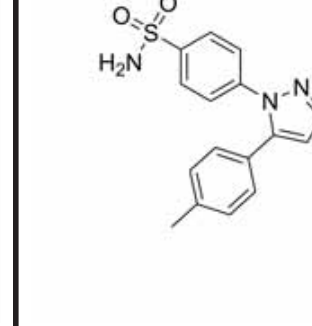

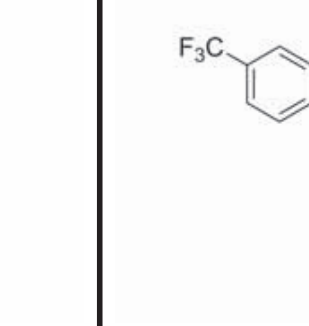
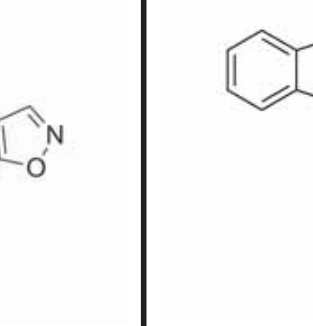
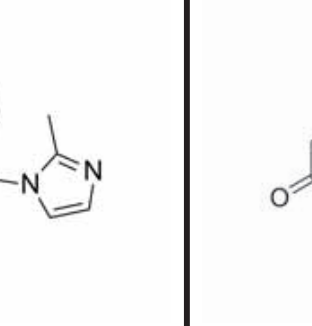
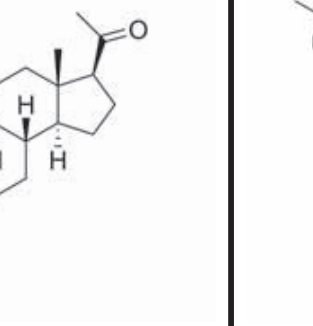
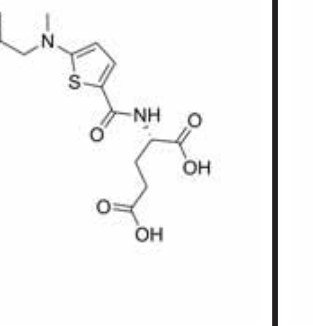
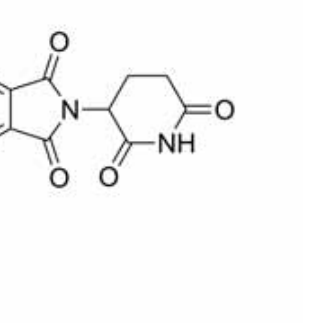
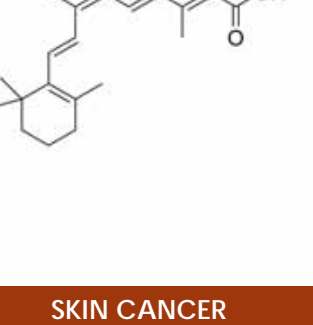
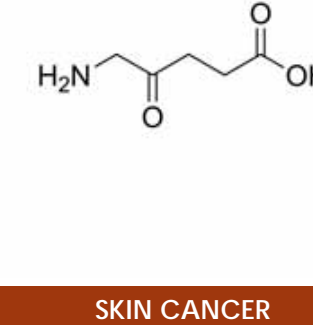
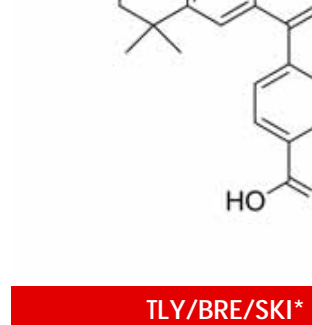
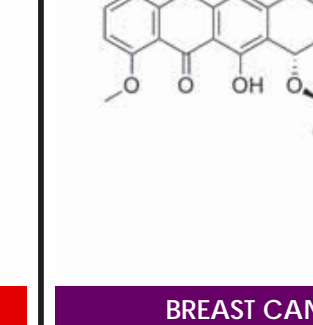
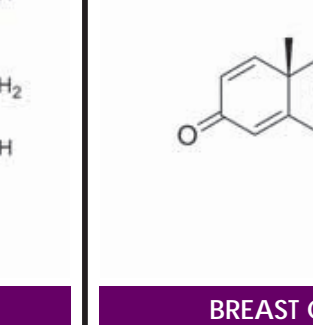
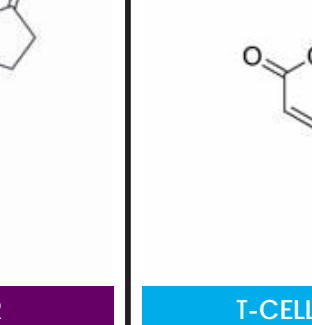
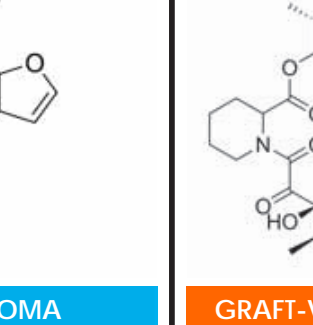
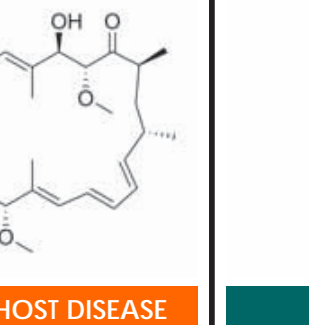
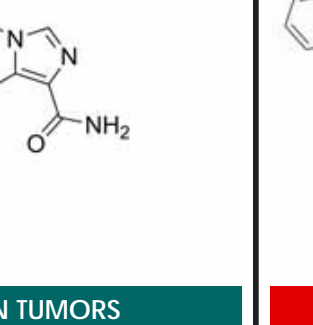
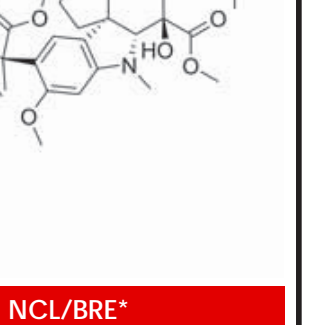
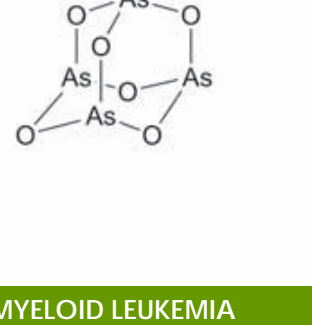
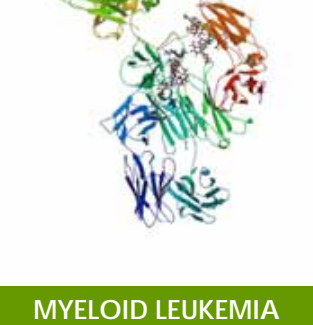
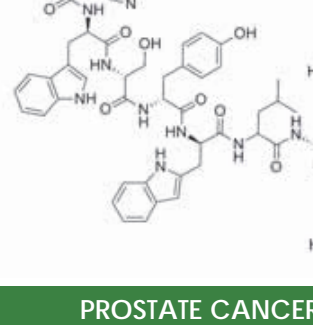
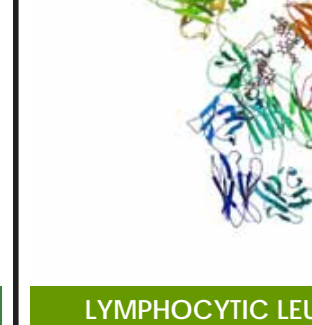
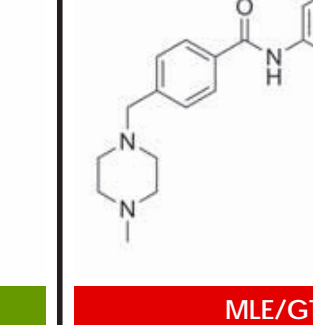
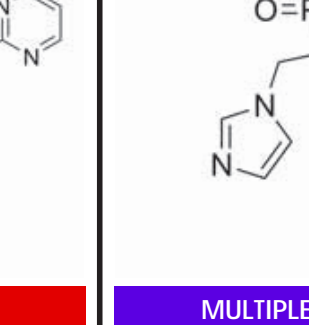
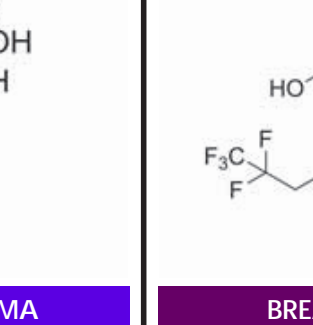
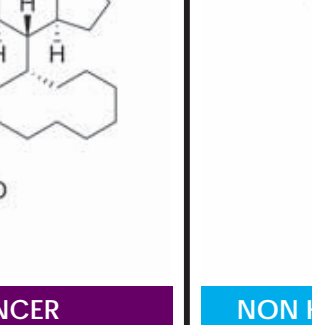
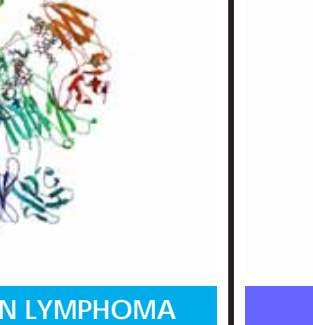
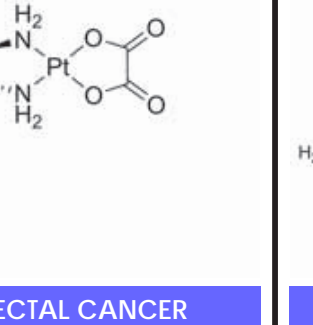
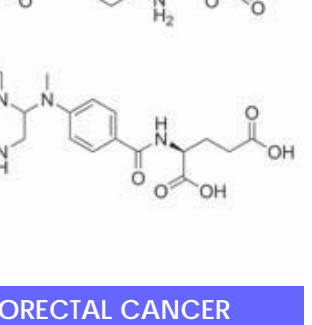
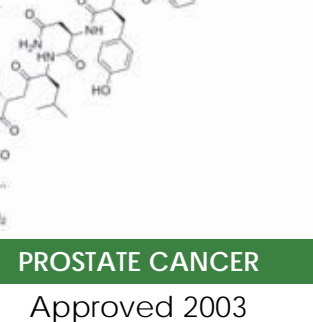
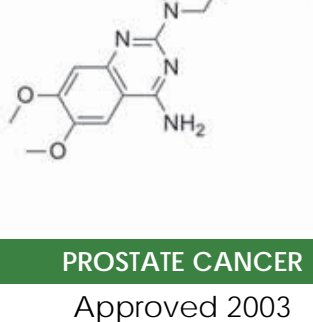
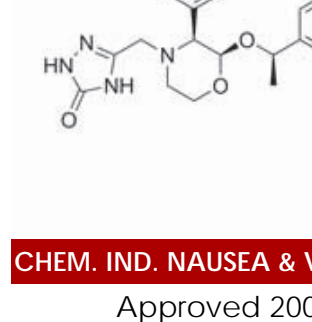
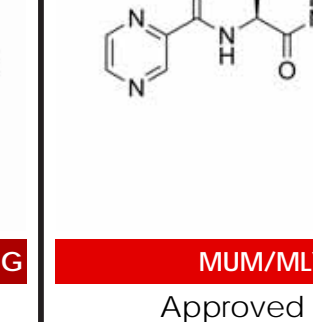
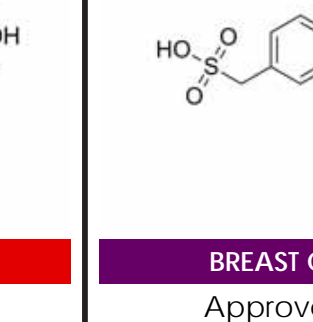
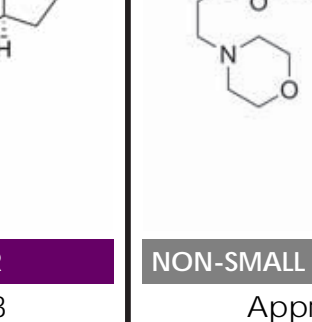
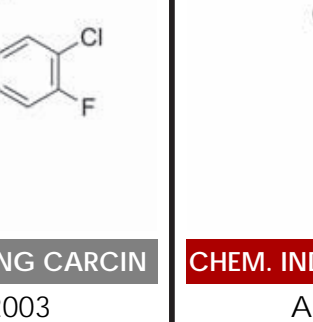
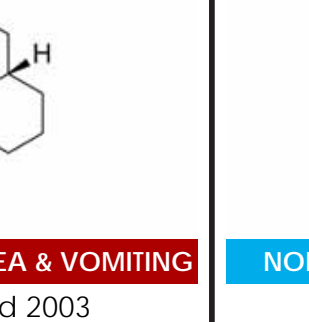

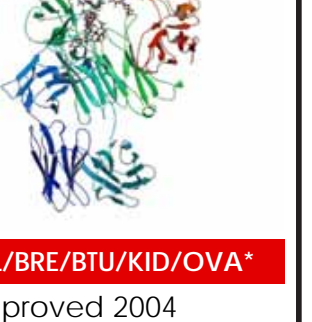
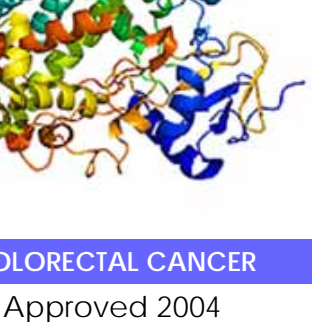
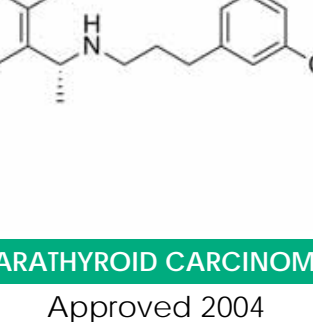
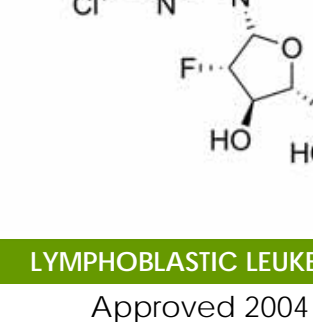
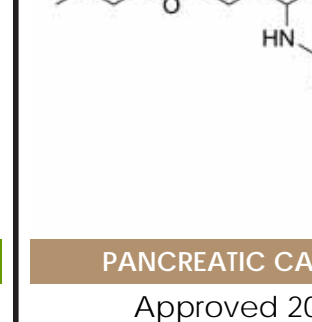
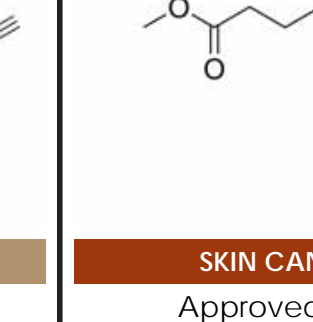
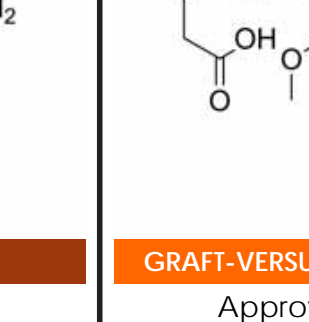
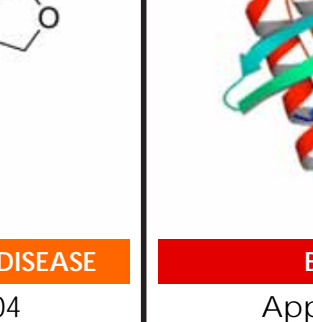
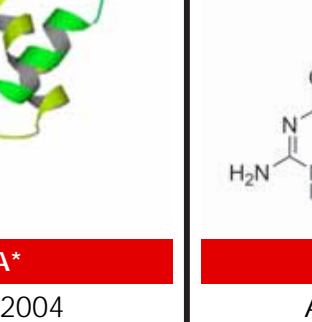
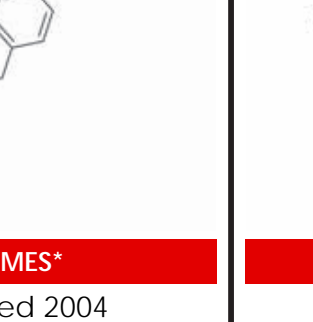
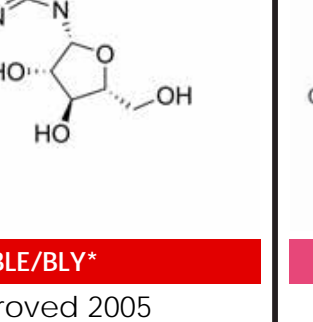
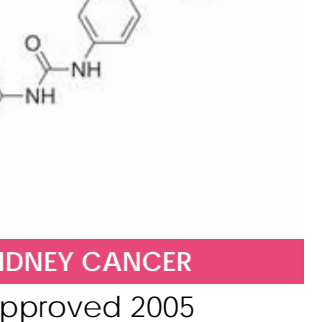


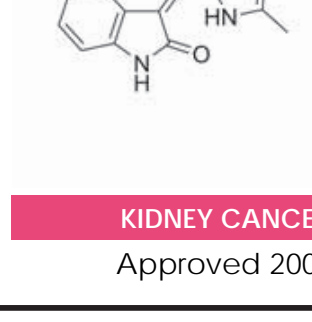
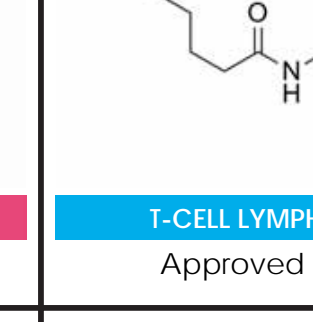
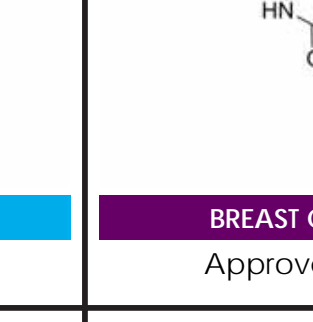
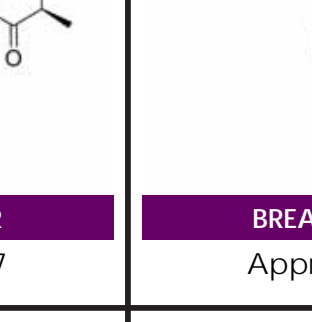
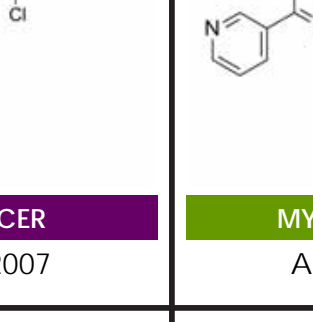
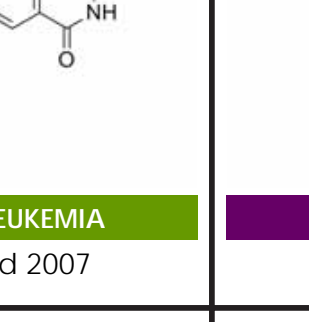
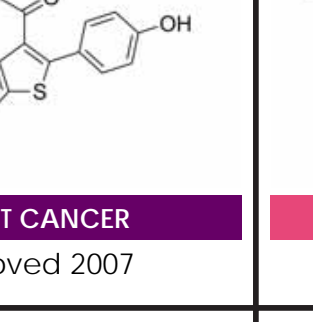
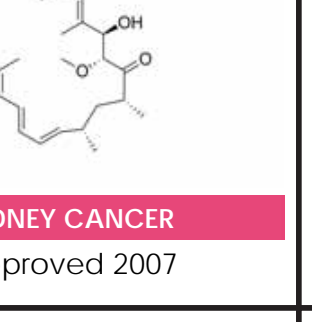
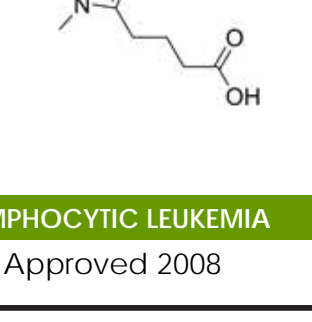
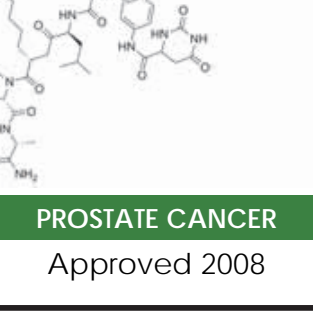
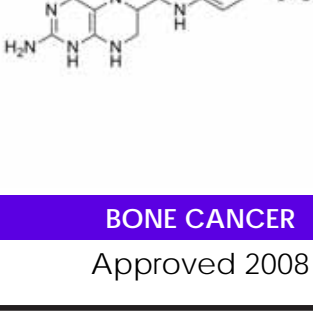
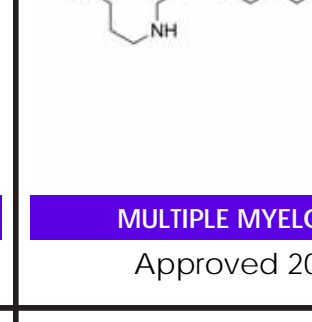
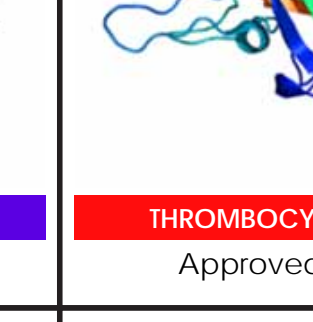
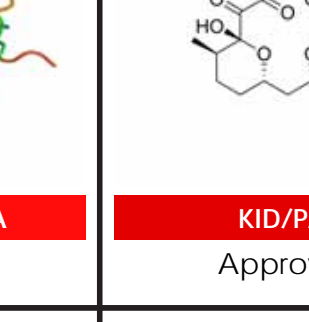
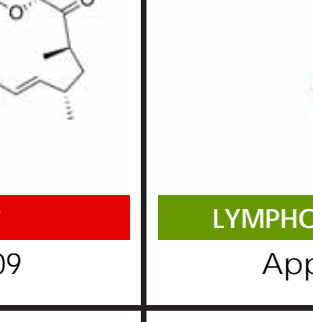
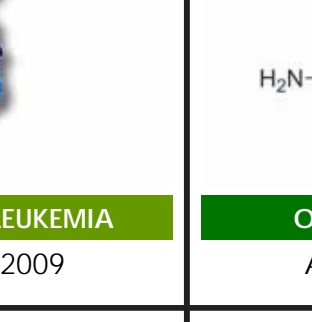
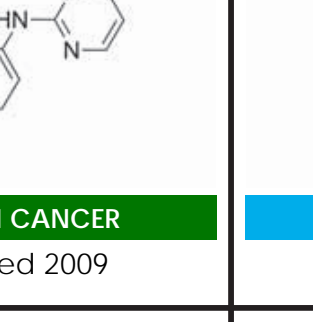
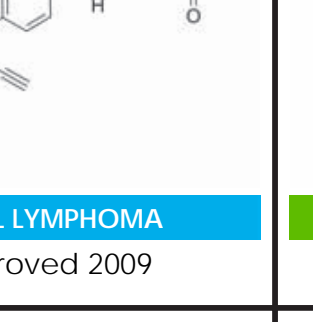




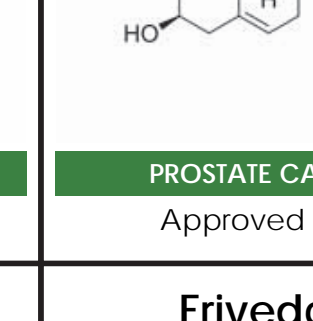
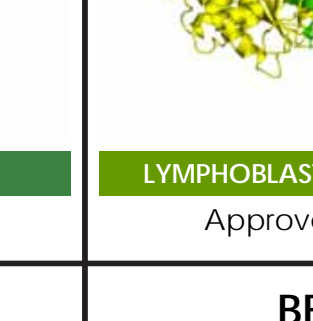
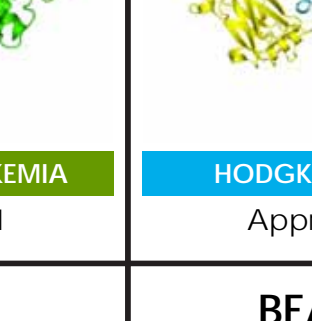
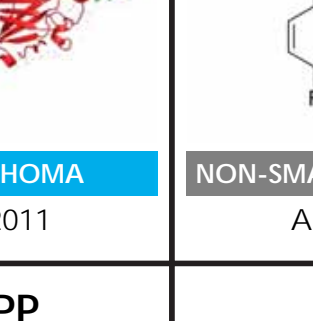
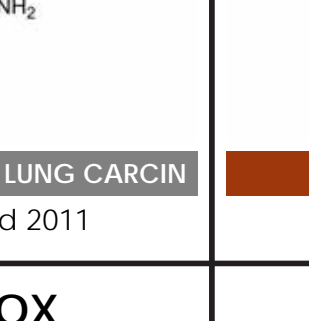
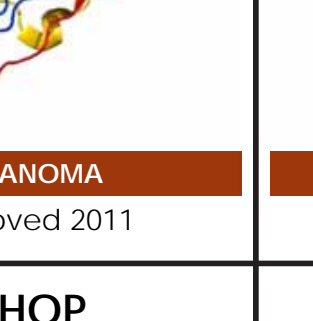
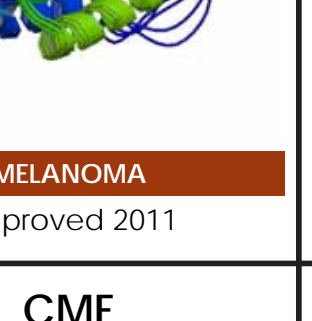
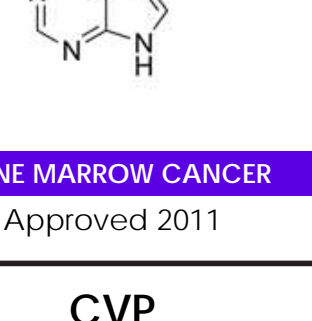
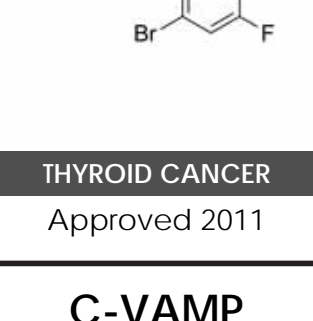
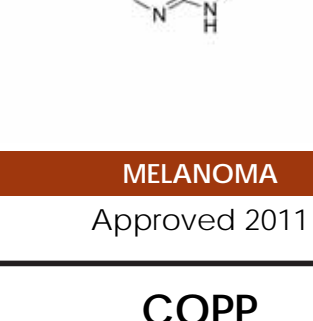
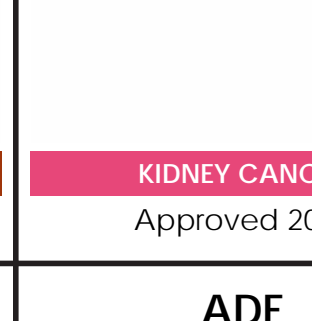
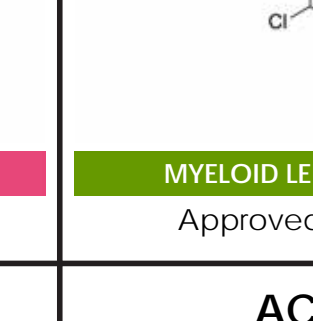
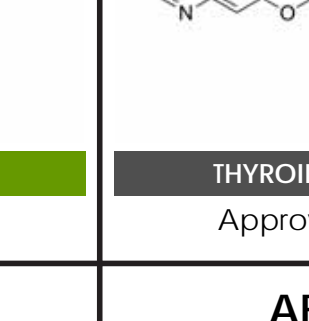
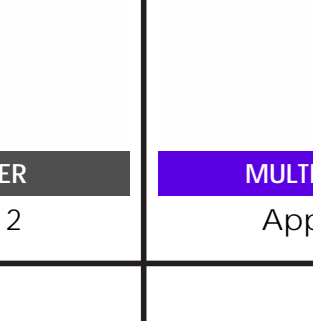
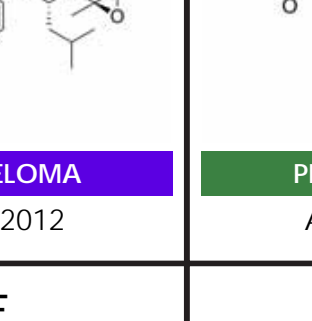
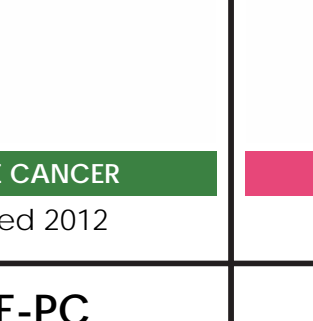





Oncological Drugs

Created by the Njardarson Group (The University of Arizona): Edon Vitaku, Elizabeth A. Ilardi, Monica A. Fallon, Erik B. Gerlach, Jack Siqueiros, Jón T. Njardarson

Purinethol (Mercaptopurine)  Approved 1953 LEUKEMIA	Methotrexate (Methotrexate)  Approved 1953 BREAST/BLADDER/COLORECTAL/LEUKEMIA	Myleran (Busulfan)  Approved 1954 MYELOID LEUKEMIA	Leukeran (Chlormebucil)  Approved 1957 CHEM. IND. NAUSEA & VOMITING	Cytosan (Cyclophosphamide)  Approved 1959 BREAST CANCER	Fluorouracil (Fluorouracil)  Approved 1962 COLORECTAL CANCER	Oncovin (Vincristine)  Approved 1963 MULTIPLE MYELOMA	Cosmegen (Dactinomycin)  Approved 1964 TESTICULAR CANCER	Alkeran (Melphalan)  Approved 1964 MULTIPLE MYELOMA	Velban (Vinblastine)  Approved 1965 HODGKIN LYMPHOMA	Vercyte (Pibrotaman)  Approved 1966 BREAST CANCER	Thioguanine (Thioguanine)  Approved 1966 LEUKEMIA	Imuran (Azathioprine)  Approved 1968 GRAFT-VERSUS-HOST DISEASE	Cytosar-U (Cytarabine)  Approved 1969 LEUKEMIA	Matulane (Pocarbazine)  Approved 1969 HODGKIN LYMPHOMA	Lysodren (Mitotane)  Approved 1970 BRAIN TUMORS	Megace (Megestrol)  Approved 1971 BREAST CANCER	Blenoxane (Bleomycin)  Approved 1973 HODGKIN LYMPHOMA	Adriamycin RDF (Doxorubicin)  Approved 1974 BREAST/BLADDER/COLORECTAL/LEUKEMIA	DTIC-Dome (Dacarbazine)  Approved 1975 MELANOMA	Amsacrine (Amsacrine)  Approved 1976 LYMPHOBLASTIC LEUKEMIA
CeeNU (Lomustine)  Approved 1976 HODGKIN LYMPHOMA	BICNU (Carmustine)  Approved 1977 BL/BL/ML/LL/NT	Nolvadex (Tamoxifen)  Approved 1977 BREAST CANCER	Platinol (Cisplatin)  Approved 1978 TES/OVA*	Cerubidine (Daunorubicin)  Approved 1979 ML/BL/NT*	Cytadren (Aminoglutethimide)  Approved 1980 BREAST CANCER	Emcyt (Estramustine)  Approved 1981 PROSTATE CANCER	Mutamycin (Mitomycin)  Approved 1982 BL/AL/AV/COI*	Zanosar (Streptozocin)  Approved 1982 HLY/PTU/ACT*	Vindesine (Vindesine)  Approved 1983 HLY/ML/ML/BL/NT/CL*	VePesid (Etoposide)  Approved 1983 SMALL CELL LUNG CANCER	Novantrone (Mitoxantrone)  Approved 1983 ML/NT/PRO/BL/NT*	Ifex (Ifofamide)  Approved 1988 TESTICULAR CANCER	Paraplatin (Carboplatin)  Approved 1989 OVARIAN CANCER	Eulexin (Flutamide)  Approved 1989 PROSTATE CANCER	Hexalen (Altretamine)  Approved 1990 OVARIAN CANCER	Idamycin (Idarubicin)  Approved 1990 MYELOID LEUKEMIA	DES (Diethylstilbestrol)  Approved 1990s BRE/PRO*	Fludara (Fludarabine)  Approved 1991 CL/NT/NT*	Nipent (Pentostatin)  Approved 1991 HAIRY CELL LEUKEMIA	Masoprocol (Masoprocol)  Approved 1992 SKIN CANCER
Taxol (Paclitaxel)  Approved 1992 BREAST CANCER	Vumon (Tropisetron)  Approved 1992 GASTRO	Leustatin (Cladribine)  Approved 1993 NT/CL/BL/NT*	Prograf (Tacrolimus)  Approved 1994 GRAFT-VERSUS-HOST DISEASE	Ethylol (Amifostine)  Approved 1995 CHEM. IND. NAUSEA & VOMITING	Arimidex (Anastrozole)  Approved 1995 BREAST CANCER	Casodex (Bicalutamide)  Approved 1995 PROSTATE CANCER	Intron A (Interferon Alfa-2b)  Approved 1995 ML/NT/NT/NT*	Photofrin (Porfimer)  Approved 1995 ESOPHAGEAL CANCER	Leukine (Sargramostim)  Approved 1995 MYELOID LEUKEMIA	Anexsia (Acetaminophen & Hydrocodone)  Approved 1996 OPROD ANALGESIC	Taxotere (Docetaxel)  Approved 1996 BREAST CANCER	Gemzar (Gemtazabine)  Approved 1996 NCL/PAN/NT*	Zoladex (Zoledronic acid)  Approved 1996 PROSTATE CANCER	Visipaque (Iodine)  Approved 1996 CONTRAST AGENT	Camptosar (Irinotecan)  Approved 1996 COLORECTAL CANCER	Lupron Depot (Leuprolide)  Approved 1996 PROSTATE CANCER	Kadian (Morphine)  Approved 1996 OPROD ANALGESIC	Nilandron (Nilutamide)  Approved 1996 PROSTATE CANCER	Aredia (Pamidronate)  Approved 1996 HYPERCALCAEMIA	Hycamtin (Topotecan)  Approved 1996 NON-SMALL CELL LUNG CANCER
Agrylin (Anagrelide)  Approved 1997 MYELOID LEUKEMIA	Xibrom (Bromfenac)  Approved 1997 OPROD ANALGESIC	Anzemet (Dolasetron)  Approved 1997 CHEM. IND. NAUSEA & VOMITING	Kytrel (Granisetron)  Approved 1997 CHEM. IND. NAUSEA & VOMITING	Aldara (Imiquimod)  Approved 1997 BASAL CELL CARCINOMA	Femara (Letrozole)  Approved 1997 BREAST CANCER	Neumega (Aldesleukin)  Approved 1997 TUMOR PROMOTER	Rituxan (Rituximab)  Approved 1997 NON-HODGKIN LYMPHOMA	Quadramet (Samarium Sm 153 Lexidronam)  Approved 1997 BONE CANCER	Fareston (Toremifene)  Approved 1997 BREAST CANCER	Proleukin (Aldesleukin)  Approved 1998 ML/NT/NT*	Xeloda (Capecitabine)  Approved 1998 BREAST CANCER	Celebrex (Celecoxib)  Approved 1998 OPROD ANALGESIC	Actiq (Fentanyl)  Approved 1998 OPROD ANALGESIC	Arava (Leflunomide)  Approved 1998 MYELOID LEUKEMIA	Zofran (Ondansetron)  Approved 1998 CHEM. IND. NAUSEA & VOMITING	Prometrium (Progesterone)  Approved 1998 BREAST CANCER	Tomudex (Raltitrexed)  Approved 1998 COLORECTAL CANCER	Thalomid (Thalidomide)  Approved 1998 MULTIPLE MYELOMA	Herceptin (Trastuzumab)  Approved 1998 BREAST CANCER	Valstar (Valaciclovir)  Approved 1998 BLADDER CANCER
Allretinoin (Atrretinoin)  Approved 1999 SKIN CANCER	Levulan (Aminolevulinic Acid)  Approved 1999 SKIN CANCER	Targretin (Bexarotene)  Approved 1999 T/BL/NT/NT/NT*	Ellence (Epirubicin)  Approved 1999 BREAST CANCER	Aromasin (Exemestane)  Approved 1999 BREAST CANCER	Uvadex (Urokinase)  Approved 1999 T-CELL LYMPHOMA	Rapamune (Sirolimus)  Approved 1999 GRAFT-VERSUS-HOST DISEASE	Temodar (Temozolamide)  Approved 1999 BRAIN TUMORS	Navelbine (Vinorelbine)  Approved 1999 NCL/BL/NT*	Trisenox (Arsenic Trioxide)  Approved 1999 MYELOID LEUKEMIA	Mylotarg (Gemtuzumab Ozogamicin)  Approved 2000 MYELOID LEUKEMIA	Trelstar Depot (Triptorelin)  Approved 2000 PROSTATE CANCER	Campath (Alemtuzumab)  Approved 2001 LYMPHOBLASTIC LEUKEMIA	Gleevec (Imatinib)  Approved 2001 ML/NT/NT*	Zometa (Zoledronic Acid)  Approved 2001 MULTIPLE MYELOMA	Faslodex (Flutamide)  Approved 2002 BREAST CANCER	Zevalin (Ibritumomab Tiuxetan)  Approved 2002 NON-HODGKIN LYMPHOMA	Eloxatin (Oxaliplatin)  Approved 2002 COLORECTAL CANCER	Eloxatin (Oxaliplatin, Fluorouracil & Leucovorin)  Approved 2002 COLORECTAL CANCER	Neulasta (Pegfilgrastim)  Approved 2002 LEUKOCYTE GROWTH FACTOR	Secreto (Pegfilgrastim)  Approved 2002 PANCREATIC CANCER
Plenaxis (Abarbax)  Approved 2003 PROSTATE CANCER	UroXatral (Afuzosin)  Approved 2003 PROSTATE CANCER	Emend (Aprepitant)  Approved 2003 CHEM. IND. NAUSEA & VOMITING	Velcade (Bortezomib)  Approved 2003 MM/NT/NT*	Premarin (Conjugated Estrogens)  Approved 2003 BREAST CANCER	Iressa (Gefitinib)  Approved 2003 NON-SMALL CELL LUNG CANCER	Aloxi (Palonosetron)  Approved 2003 CHEM. IND. NAUSEA & VOMITING	Bexxar (Tositumomab)  Approved 2003 NON-HODGKIN LYMPHOMA	Avastin (Bevacizumab)  Approved 2004 COLORECTAL/BL/BL/NT/NT/NT/NT*	Erbilux (Cetuximab)  Approved 2004 COLORECTAL CANCER	Sensipar (Cinacalcet)  Approved 2004 PARATHYROID CARCINOMA	Clolar (Clorazepate)  Approved 2004 LYMPHOBLASTIC LEUKEMIA	Tarceva (Erlotinib)  Approved 2004 PANCREATIC CANCER	Melvia (Methyl Aminovalinate)  Approved 2004 SKIN CANCER	Myfortic (Mycophenolic Acid)  Approved 2004 GRAFT-VERSUS-HOST DISEASE	Keplivance (Palfenim)  Approved 2004 E/O/NT/NT*	Alimta (Pemetrexed)  Approved 2004 NCL/NT/NT*	Arranon (Nelarabine)  Approved 2005 BL/BL/NT*	Nexavar (Sorafenib)  Approved 2005 KIDNEY CANCER	Sprycel (Dasatinib)  Approved 2006 ML/BL/NT*	Vectibix (Panitumumab)  Approved 2006 COLORECTAL CANCER
Oncaspar (Pegaspargase)  Approved 2006 CL/NT/BL/NT/NT*	Gardasil (Quadrivalent Human Papillomavirus Vaccine)  Approved 2006 CER/ANA*	Sutent (Sunitinib)  Approved 2006 KIDNEY CANCER	Zolanza (Vorinostat)  Approved 2006 T-CELL LYMPHOMA	Ixempra (Ixabepipone)  Approved 2007 BREAST CANCER	Tykerb (Lapatinib)  Approved 2007 BREAST CANCER	Tasigna (Nilotinib)  Approved 2007 MYELOID LEUKEMIA	Evista (Raloxifene)  Approved 2007 BREAST CANCER	Torisel (Temsirolumab)  Approved 2007 KIDNEY CANCER	Treanda (Bendamustine)  Approved 2007 LYMPHOBLASTIC LEUKEMIA	Degarelix (Degarelix)  Approved 2008 PROSTATE CANCER	Fusilev (Folic Acid)  Approved 2008 BONE CANCER	Mozfol (Pleiotin)  Approved 2008 MULTIPLE MYELOMA	Nplate (Romiplostim)  Approved 2008 THROMBOCYTOPENIA	Afinitor (Everolimus)  Approved 2009 MD/PAN/BL/NT*	Arzerra (Ofatumumab)  Approved 2009 LYMPHOBLASTIC LEUKEMIA	Vorient (Pazopanib)  Approved 2009 OVARIAN CANCER	Folotylin (Pralatrexate)  Approved 2009 T-CELL LYMPHOMA	Elitek (Rastacicev)  Approved 2009 TUMOR LYSIS SYNDROME	Istodax (Romidepsin)  Approved 2009 T-CELL LYMPHOMA	Jevtana (Cabazitaxel)  Approved 2010 PROSTATE CANCER
Xgeva (Denosumab)  Approved 2010 MULTIPLE MYELOMA	Halaven (Eribulin)  Approved 2010 BREAST CANCER	Provenge (Sipuleucel-T)  Approved 2010 PROSTATE CANCER	Zytiga (Abiraterone)  Approved 2011 PROSTATE CANCER	Erwinaze (Apospargino Deoxy Crystalline)  Approved 2011 LYMPHOBLASTIC LEUKEMIA	Adcetris (Brentuximab Vedotin)  Approved 2011 HODGKIN LYMPHOMA	Xalkori (Crizotinib)  Approved 2011 NON-SMALL CELL LUNG CANCER	Yervoy (Ipilimumab)  Approved 2011 MELANOMA	Sylatron (Peginterferon Alfa-2b)  Approved 2011 MELANOMA	Jakafi (Ruxitinib)  Approved 2011 BONE MARROW CANCER	Vandetanib (Vandetanib)  Approved 2011 THYROID CANCER	Zelboraf (Vemurafenib)  Approved 2011 MELANOMA	Inlyta (Axitinib)  Approved 2012 KIDNEY CANCER	Bosulf (Bosutinib)  Approved 2012 MYELOID LEUKEMIA	Cometriq (Cabozantinib)  Approved 2012 THYROID CANCER	Kyprolis (Carfilzomib)  Approved 2012 MULTIPLE MYELOMA	Xtandi (Enzalutamide)  Approved 2012 PROSTATE CANCER	Voraxaze (Glucagonase)  Approved 2012 KIDNEY CANCER	Picato (Ingenol Mebutate)  Approved 2012 SKIN CANCER	Synbro (Omacetaxine)  Approved 2012 MYELOID LEUKEMIA	Perjeta (Pertuzumab)  Approved 2012 BREAST CANCER
Iclusig (Ponatinib)  Approved 2012 MYELOID LEUKEMIA	Stivarga (Regorafenib) 																			