Supplementary Table 1

Summary of FDA approval data for rare cancer indications from December 1987 to May 2011

Name	Mechanism of Action	Approval Date	Indication	Approximate Incidence per 100,000 per Year	Trial Design	Sample Size (N)	Endpoint	Priority Review	Accelerated Approval
1. mitoxantrone hydrochloride (NOVANTRONE®)	A DNA reactive agent which Intercalates into deoxyribonucleic acid (DNA/RNA); Inhibits Topoisomerase II	12/23/1987	In combination with other approved drug(s) for the initial treatment of adult acute non-lymphocytic leukemia (ANLL).	10500	T1: OL RCT MCT	200	ORR	N	N
mitoxantrone hydrochloride (NOVANTRONE®)					T2: OL RCT MCT	239			

Abbreviations: OL- Open label; MCT- Multi-center trial; SCT- Single- center trial; DB- Double blind; SB- Single blind; PC- Placebo controlled; DE- Dose escalation; S= Stratification; ORR- Overall response rate; PFS- Progression free survival; TTP- Time to Progression; T1-Trial ; T2-Trial 2; T3-Trial 3; T4-Trial 4.

	Name	Mechanism of Action	Approval Date	Indication	Approximate Incidence per 100,000 per Year	Trial Design	Sample Size (N)	Endpoint	Priority Review	Accelerated Approval
2.	idarubicin hydrochloride (IDAMYCIN®)	DNA-intercalating analog of daunorubicin which has an inhibitory effect on nucleic acid synthesis and interacts with the enzyme topoisomerase II	9/27/1990	In combination with other approved antileukemic drugs for the treatment of acute myeloid leukemia (AML) in adults.	10500	T1: OL RCT SCT	130	ORR	N	N
	idarubicin hydrochloride (IDAMYCIN®)					T2:OL RCT MCT	230			
	idarubicin hydrochloride (IDAMYCIN®)					T3:OL RCT MCT	214			
3.	fludarabine phosphate (FLUDARA®)	A synthetic purine nucleotide whose metabolite inhibitis DNA polymerase alpha, ribonucleotide reductase and DNA primase, thus inhibiting DNA synthesis	4/18/1991	Palliative treatment of adult patients with B-cell chronic lymphocytic leukemia (CLL) refractory to other therapies	15000	T1: OL SA SCT	48	ORR	N	N
	fludarabine phosphate (FLUDARA®)					T2: OL SA MCT	31			

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	Name	Mechanism of Action	Approval Date	Indication	Approximate Incidence per 100,000 per Year	Trial Design	Sample Size (N)	Endpoint	Priority Review	Accelerated Approval
4.	pentostatin (NIPENT®)	Potent transition state inhibitor of the enzyme adenosine deaminase (ADA)	10/11/1991	Single agent treatment for adult patients with alpha-interferon-refractory hairy cell leukemia.	600	T1: OL SA SCT	44	ORR	N	N
5.	teniposide (VUMON®)	A phase-specific cytotoxic drug, acting in the late S or early G2 phase of the cell cycle, thus preventing cells from entering mitosis; inhibiting type II topoisomerase activity, causing dose-dependent single- and double-stranded breaks in DNA and DNA-protein cross-links	7/14/1992	Induction therapy in patients with refractory childhood acute lymphoblastic leukemia when used in combination with other approved anticancer agents.	4800	T1: OL SA SCT	9	ORR	Y	N
	teniposide (VUMON®)					T2: OL SA SCT	16			

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	Name	Mechanism of Action	Approval Date	Indication	Approximate Incidence per 100,000 per Year	Trial Design	Sample Size (N)	Endpoint	Priority Review	Accelerated Approval
6.	melphalan hydrochloride (ALKERAN®)	A phenylalanine derivative of nitrogen mustard with bifunctional alkylating property causing interstrand cross-linking with DNA.	11/18/1992	For the palliative treatment of patients with multiple myeloma for whom oral therapy is not appropriate.	16800	T1: OL RCT MCT	295	ORR	Y	N
7.	cladribine (LEUSTATIN®)	A synthetic purine nucleoside which inhibits both DNA synthesis and repair by increasing intracellular deoxynucleotide content	2/26/1993	Treatment of hairy cell leukemia	600	T1: OL SA SCT	89	ORR	Y	N
	cladribine (LEUSTATIN®)					T2: OL SA SCT	35			

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	Name	Mechanism of Action	Approval Date	Indication	Approximate Incidence per 100,000 per Year	Trial Design	Sample Size (N)	Endpoint	Priority Review	Accelerated Approval
8.	pegaspargase (ONCASPAR®)	An asparagine specific enzyme which is thought to selectively kills leukemic cells due to depletion of plasma asparagine	2/1/1994	Combination chemotherapy for the treatment of patients with acute lymphoblastic leukemia who are hypersensitive to native forms of L-asparaginase.	4800	T1: OL SA MCT+S	174	Reduced toxicity	N	N
9.	doxorubicin HCl liposome injection (DOXIL®)	An anthracycline topoisomerase inhibitor, thought to bind DNA and inhibit nucleic acid synthesis	11/17/1995	2nd line therapy in Kaposi's sarcoma	3000	T1: OL SA MCT	34	ORR	N	Y
10.	tretinoin (VESANOID®)	A retinoid which induces cytodifferentiation and decreased proliferation of APL cells in culture and in vivo	11/22/1995	Induction of remission in patients with acute promyelocytic leukemia who are refractory to or unable to tolerate anthracycline based cytotoxic chemotherapeutic regimens.	10500	T1: OL SA SCT	35	ORR	Y	N
11.	porfimer sodium (PHOTOFRIN®)	A photodynamic therapy drug causing cellular damage through the propagation of radical reactions.	12/27/1995	Photodynamic therapy with Photofrin indicated for the palliation of patients with completely obstructing esophageal cancer, or with partially obstructing esophageal cancer who cannot be satisfactorily treated with Nd:YAG laser therapy.	13500	T1: OL SA MCT	17	Symptom a-tic improve-ment	Y	N

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12. polifeprosan 20 with carmustine implant (GLIADEL®)	Wafer designed to deliver carmustine, a nitrosourea oncolytic agent	9/23/1996	As an adjunct to surgery to prolong survival in patients with recurrent glioblastoma multiforme for whom surgical resection is indicated	8000	T1: DB MCT RCT + PC	222	Survival	Y	N
13. rituximab (RITUXAN®)	A CD20-directed cytolytic antibody	11/26/1997	Relapsed or refractory low-grade or follicular, CD20 positive, B-cell non-Hodgkin's lymphoma.	17100	T1: OL SA MCT	166	ORR	Y	N
rituximab (RITUXAN®)					T2: OL SA MCT	37			
14. alitretinoin (PANRETIN®)	A naturally-occurring endogenous retinoid that binds to and activates all known intracellular retinoid receptor subtypes (RARα, RARβ, RARγ, RXRα, RXRβ and RXRγ) which regulate the expression of genes that control the process of cellular differentiation and proliferation in both normal and neoplastic cells	2/2/1999	Topical treatment of cutaneous lesions in patients with AIDS-related Kaposi's sarcoma.	3000	T1: DB RCT MCT	268	ORR	Y	N
alitretinoin (PANRETIN®)					T2: DB RCT MCT	82			

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15.	busulfan (BUSULFEX®)	A bifunctional alkylating agent interacting with DNA	2/4/1999	In combination with cyclophosphamide as a conditioning regimen prior to allogeneic hematopoietic progenitor cell transplantation for chronic myelogenous leukemia.	10500	T1: OL SA MCT	61	Time to engraftment	Y	N
	busulfan (BUSULFEX®)					T2: OL SA MCT	42			
16.	denileukin diftitox (ONTAK®)	A CD25-directed cytotoxin, cytocidal to cells which express the IL-2 receptor	2/5/1999	Persistent or recurrent cutaneous T-cell lymphoma whose malignant cells express the CD25 component of the IL-2 receptor.	2000	T1: DB RCT MCT+PC 3 arm	144	ORR	N	Y
	denileukin diftitox (ONTAK®)					T2: DB RCT MCT	71			
17.	temozolomide (TEMODAR®)	An alkylating agent interacting with DNA	8/11/1999	Adult patients with refractory anaplastic astrocytoma, i.e., patients at first relapse who have experienced disease progression on a drug regimen containing a nitrosourea and procarbazine.	8000	T1: OL SA MCT	54	PFS	Y	Y

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18.	bexarotene (TARGRETIN®)	A retinoid that selectively binds and activates retinoid X receptor subtypes (RXRa, RXRb, RXRg) Which regulate the expression of genes that control cellular differentiation and proliferation	12/29/1999	Treatment of cutaneous manifestations of cutaneous T-cell lymphoma in patients who are refractory to at least one prior systemic therapy.	2000	T1: OL SA MCT+ RD	58	ORR	Y	N
	bexarotene (TARGRETIN®)					T2: OL SA MCT	94			
19.	gemtuzumab ozogamicin (MYLOTARG®)	A CD33-directed monoclonal antibody cytotoxic to CD33 expressing cells	5/17/2000	Treatment of patients with CD33 positive acute myeloid leukemia in first relapse who are 60 years of age or older and who are not considered candidates for cytotoxic chemotherapy	10500	T1: OL SA MCT	65	ORR	Y	Y
	gemtuzumab ozogamicin (MYLOTARG®)					T2: OL SA MCT	40			
	gemtuzumab ozogamicin (MYLOTARG®)					T3: OL SA MCT	37			

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20.	arsenic trioxide (TRISENOX®)	Not completely understood. Arsenic trioxide causes morphological changes and DNA fragmentation characteristic of apoptosis in NB4 human promyelocytic leukemia cells in vitro. Arsenic trioxide also causes damage or degradation of the fusion protein PML/RAR-alpha.	9/25/2000	For induction of remission and consolidation in patients with acute promyelocytic leukemia (APL) who are refractory to, or have relapsed from, retinoid and anthracycline chemotherapy, and whose APL is characterized by the presence of the t(15;17) translocation of PML/RAR-alpha gene expression.	10500	T1: OL SA MCT	40	ORR	Y	N
	arsenic trioxide (TRISENOX®)					T2: OL SA SCT	12			
21.	alemtuzumab (CAMPATH®)	A CD52-directed cytolytic monoclonal antibody.	5/7/2001	Treatment of B-cell chronic lymphocytic leukemia (B-CLL) in patients who have been treated w/ alkylating agents and who have failed fludarabine therapy	15000	T1: OL SA MCT	93	ORR	N	Y

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22.	imatinib mesylate (GLEEVEC®)	A protein-tyrosine kinase inhibitor that inhibits the Bcr-Abl tyrosine kinase, the constitutive abnormal tyrosine kinase created by the Philadelphia chromosome abnormality in CML	5/10/2001	Patients with chronic myeloid leukemia (CML) in blast crisis, accelerated phase, or in chronic phase after failure of interferon-alpha therapy	5000	T1: OL SA MCT	532	ORR	Y	Y
	imatinib mesylate (GLEEVEC®)					T2: OL SA MCT	235			
	imatinib mesylate (GLEEVEC®)					T3: OL SA MCT	260			
23.	imatinib mesylate (GLEEVEC®)	An inhibitor of the receptor tyrosine kinases for platelet-derived growth factor (PDGF) and stem cell factor (SCF), c-kit, and inhibits PDGF- and SCF-mediated cellular events.	2/1/2002	Patients with Kit (CD117) positive unresectable and/or metastatic malignant gastrointestinal stromal tumors (GIST).	5000	T1: OL SA MCT + RD (dose)	147	ORR	Y	Y

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24.	ibritumomab tiuxetan (ZEVALIN®)	A CD20-directed radiotherapeutic antibody conjugated with Y-90 which emits the beta emission to induce cellular damage by the formation of free radicals in the target and neighboring cells.	2/19/2002	Relapsed or refractory low-grade, follicular, or transformed B-cell non-Hodgkin's lymphoma, including patients with rituximab refractory follicular non-Hodgkin's lymphoma.	17100	T1: OL SA MCT	54	ORR	N	Y
	ibritumomab tiuxetan (ZEVALIN®)					T2: RCT MCT	143			
25.	polifeprosan 20 with carmustine implant (GLIADEL®)	Wafer designed to deliver carmustine, a nitrosourea oncolytic agent	2/25/2003	Expanding the indication to include patients with malignant glioma undergoing primary surgical resection.	8000	T1: DB MCT RCT + PC	240	Survival	Y	N
26.	bortezomib (VELCADE®)	A reversible inhibitor of the chymotrypsin-like activity of the 26S proteasome leading to cell death	5/13/2003	Treatment of multiple myeloma patients who have received at least two prior therapies and have demonstrated disease progression on the last therapy	16800	T1: OL SA MCT	188	ORR	Y	Y

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	Name	Mechanism of Action	Approval Date	Indication	Approximate Incidence per 100,000 per Year	Trial Design	Sample Size (N)	Endpoint	Priority Review	Accelerated Approval
27.	tositumomab and Iodine I 131 (BEXXAR®)	Radioimmunotherapeutic CD 20-directed monoclonal antibody-based regimen composed of the monoclonal antibody, Tositumomab, and the radiolabeled monoclonal antibody, Iodine I 131	6/27/2003	CD20 positive, follicular, non-Hodgkin's lymphoma, with and without transformation, whose disease is refractory to rituximab and has relapsed following chemotherapy	12000	T1: OL SA MCT	40	ORR	N	N
28.	porfimer sodium (PHOTOFRIN®)	A photodynamic therapy drug causing cellular damage	8/1/2003	For the ablation of high-grade dysplasia in Barrett's esophagus patients who do not undergo esophagectomy	13500	T1: SB RCT MCT	208	ORR	Y	N
29.	pemetrexed for injection (ALIMTA®)	A folate analog metabolic inhibitor that exerts its action by disrupting folate-dependent metabolic processes essential for cell replication	2/4/2004	Patients with malignant pleural mesothelioma whose disease is either unresectable or who are otherwise not candidates for curative surgery	2500	T1: SB RCT MCT	448	Survival	Y	N

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30.	azacitidine for injection (VIDAZA®)	A nucleoside metabolic inhibitor believed to exert its antineoplastic effects by causing hypomethylation of DNA and direct cytotoxicity on abnormal hematopoietic cells in the bone marrow	5/19/2004	Patients with the following MDS subtypes: refractory anemia or refractory anemia with ringed sideroblasts (if accompanied by neutropenia or thrombocytopenia and requiring transfusions), refractory anemia with excess blasts, refractory anemia with excess blasts in transformation, and chronic myelomonocytic leukemia	15000	T1: OL RCT MCT	172	ORR	Y	N
31.	clofarabine (CLOLAR®)	A purine nucleoside metabolic inhibitor that Inhibits DNA synthesis and repair	12/28/2004	Treatment of pediatric patients 1 to 21 years old with relapsed or refractory acute lymphoblastic leukemia after at least two prior regimens	4800	T1: OL DE MCT	66	ORR	Y	Y
	clofarabine (CLOLAR®)					T2: OL SA MCT	49			
32.	temozolomide (TEMODAR®)	An alkylating agent interacting with DNA	3/15/2005	Adult patients with newly diagnosed glioblastoma multiforme concomitantly with radiotherapy and then as maintenance treatment	8000	T1: OL RCT MCT	573	Survival	Y	N

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33.	bortezomib (VELCADE®)	A reversible inhibitor of the chymotrypsin-like activity of the 26S proteasome leading to cell death	3/25/2005	Multiple myeloma patients who have received at least one prior therapy	16800	T1: OL RCT MCT + S	669	TTP	Y	N
34.	nelarabine (ARRANON®)	A nucleoside metabolic inhibitor, pro-drug of ara-GI that inhibits DNA synthesis	10/28/2005	T-cell acute lymphoblastic leukemia and T-cell lymphoblastic lymphoma whose disease has not responded to or has relapsed following treatment with at least two chemotherapy regimens	150	T1: OL SA MCT	84	ORR	Y	Y
	nelarabine (ARRANON®)					T2: OL SA MCT	39			

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35.	lenalidomide (REVLIMID®)	Remains to be fully characterized; possesses immunomodulatory, antiangiogenic, and antineoplastic properties	12/27/2005	Treatment of patients with transfusion dependant anemia due to low or intermediate-1 risk myelodysplastic syndromes associated with a deletion 5 q cytogenetic abnormality with or without additional cytogenetic abnormalities	15000	T1: OL SA SCT	45	Symptom a-tic improve-ment	Y	Y
	lenalidomide (REVLIMID®)					T2: OL SA MCT	215			
	lenalidomide (REVLIMID®)					T3: OL SA MCT	148			
36.	sunitinib malate (SUTENT®)	A small molecule that inhibits multiple receptor tyrosine kinases (RTKs), some of which are implicated in tumor growth, pathologic angiogenesis, and metastatic progression of cancer.	1/26/2006	GIST after disease progression on or intolerance to imatinib	5000	T1: DB RCT MCT with PC + S	312	TTP	Y	N

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	sunitinib malate (SUTENT®)					T2: OL SA MCT + DE	55			
37.	decitabine (DACOGEN®)	A nucleoside metabolic inhibitor, believed to exert its antineoplastic effects after phosphorylation and direct incorporation into DNA and inhibition of DNA methyltransferase, causing hypomethylation of DNA and cellular differentiation or apoptosis	5/2/2006	Patients with myelodysplastic syndromes (MDS) including previously treated and untreated, de novo and secondary MDS of all French-American-British subtypes	15000	T1: OL RCT MCT	170	ORR	N	N
38.	thalidomide (THALOMID®)	An immunomodulatory agent; possesses immunomodulatory, anti-inflammatory and anti-angiogenic properties	5/25/2006	Patients with newly diagnosed multiple myeloma	16800	T1: OL RCT MCT	207	ORR	N	Y

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39.	dasatinib (SPRYCEL®)	A protein-tyrosine kinase inhibitor that inhibits the Bcr-Abl	6/28/2006	Adults with Philadelphia chromosome-positive acute lymphoblastic leukemia with resistance or intolerance to prior therapy.	4800	T1: OL SA MCT	36	ORR	Y	N
40.	dasatinib (SPRYCEL®)	A protein-tyrosine kinase inhibitor that inhibits the Bcr-Abl	6/28/2006	Adults with chronic, accelerated, or myeloid or lymphoid blast phase chronic myeloid leukemia with resistance or intolerance to prior therapy including imatinib.	5000	T1: OL SA MCT	186	ORR	Y	Y
	dasatinib (SPRYCEL®)					T2: OL SA MCT	107			
	dasatinib (SPRYCEL®)					T3: OL SA MCT	74			
	dasatinib (SPRYCEL®)					T4: OL SA MCT	42			
41.	lenalidomide (REVLIMID®)	Remains to be fully characterized; possesses immunomodulatory, antiangiogenic, and antineoplastic properties	6/29/2006	In combination with dexamethasone for the treatment of multiple myeloma patients who have received at least one prior therapy.	16800	T1: DB RCT MCT	341	TTP	N	Y
	lenalidomide (REVLIMID®)					T2: DB RCT MCT	351			

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42.	imatinib mesylate (GLEEVEC®)	A protein-tyrosine kinase inhibitor that inhibits the Bcr-Abl;	9/27/2006	Newly diagnosed pediatric patients with Philadelphia chromosome positive CML in chronic phase	5000	T1: OL SA MCT	51	ORR	N	Y
	imatinib mesylate (GLEEVEC®)			Ph+ chronic Phase CML after stem cell transplant or resistant to interferon-alpha therapy		T2: OL SA MCT	14	ORR		
43.	rituximab (RITUXAN®)	A CD20-directed cytolytic antib	9/29/2006	First-line treatment of low grade or follicular CD-20 positive, B-cell NHL in combination with CVP chemotherapy	17100	T1: SB RCT MCT	322	PFS	N	N
	rituximab (RITUXAN®)					T2: OL RCT MCT	322			
44.	vorinostat (ZOLINZa®)	A histone deacetylase (HDAC) inhibitor inhibits the enzymatic activity of histone deacetylases HDAC1, HDAC2 and HDAC3 (Class I) and HDAC6 (Class II)	10/6/2006	Treatment of cutaneous manifestations in patients with cutaneous T-cell lymphoma (CTCL) who have progressive, persistant or recurrent disease on or following two systemic therapies.	2000	T1: OL SA MCT	74	ORR	Y	N
45.	imatinib mesylate (GLEEVEC®)	A protein-tyrosine kinase inhibitor that inhibits the Bcr-Abl	10/19/2006	Adult patients with relapsed or refractory Philadelphia chromosome positive acute lymphoblastic leukemia	4800	T1: OL SA MCT	45	ORR	N	N

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46.	imatinib mesylate (GLEEVEC®)	An inhibitor of the receptor tyrosine kinases for platelet-derived growth factor (PDGF) and stem cell factor (SCF), c-kit, and inhibits PDGF- and SCF-mediated cellular events. In vitro, imatinib inhibits proliferation and induces apoptosis in GIST cells, which express an activating c-kit mutation	10/19/2006	Treatment of adult patients with hypereosinophic syndrome (HES) and/or chronic eosinophilic leukemia (CEL) who have the FIP1L1-PDGFRα fusion kinase (mutational analysis or FISH demonstration of CHIC2 allele deletion) and for patients with HES and/or CEL who are FIP1L1-PDGFRα fusion kinase negative or unknown.	<3000	T1: OL SA MCT	14	ORR	N	N
47.	imatinib mesylate (GLEEVEC®)	above	10/19/2006	Adult patients with myelodysplastic/myeloproliferative diseases (MDS/MPD) associated with PDGFR (platelet-derived growth factor receptor) gene re-arrangements.	15000	T1: OL SA MCT	7	ORR	N	N
48.	imatinib mesylate (GLEEVEC®)	above	10/19/2006	adult patients with unresectable, recurrent and/or metastatic dermatofibrosarcoma protuberans (DFSP).	<3000	T1: OL SA MCT	12	ORR	N	N
49.	imatinib mesylate (GLEEVEC®)	above	10/19/2006	Adult patients with aggressive systemic mastocytosis (ASM) without the D816V c-Kit mutation or with c-Kit mutational status	3000	T1: OL SA MCT	5	ORR	N	N

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	Name	Mechanism of Action	Approval Date	Indication	Approximate Incidence per 100,000 per Year	Trial Design	Sample Size (N)	Endpoint	Priority Review	Accelerated Approval
				unknown.						
50.	bortezomib (VELCADE®)	A reversible inhibitor of the chymotrypsin-like activity of the 26S proteasome leading to cell death	12/8/2006	Patients with mantle-cell lymphoma who received at least one prior therapy	3000	T1: OL SA MCT	155	ORR	Y	N
51.	doxorubicin HCl liposome injection (DOXIL®)	An anthracycline topoisomerase inhibitor, thought to bind DNA and inhibit nucleic acid synthesis	5/17/2007	In combination with bortezomib for the treatment of patients with multiple myeloma who have not previously received bortezomib and have at least one prior therapy.	16800	T1: OL RCT MCT	646	TTP	Y	N
52.	nilotinib (TASIGNA®)	~~A~~ kinase inhibitor that inhibits the Bcr-Abl	10/29/2007	For the use for chronic phase (CP) and accelerated phase (AP) Philadelphia chromosome positive chronic myelogenous leukemia (CML) in adult patients resistant to or intolerant to prior therapy that included imatinib	5000	T1: OL SA MCT	337	ORR	N	Y
53.	levoleucovorin (FUSILEV®)	Folate analog	3/7/2008	Levoleucovorin rescue is indicated after high-dose methotrexate therapy in osteosarcoma.	927	T1: OL SA MCT	16	Reduced toxicity	N	N

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	Name	Mechanism of Action	Approval Date	Indication	Approximate Incidence per 100,000 per Year	Trial Design	Sample Size (N)	Endpoint	Priority Review	Accelerated Approval
54.	bendamustine hydrochloride (TREANDA®)	Alkylating agent interacting with DNA	3/20/2008	Patients with chronic lymphocytic leukemia	15000	T1: OL RCT MCT	301	ORR	Y	N
55.	bortezomib (VELCADE®)	A reversible inhibitor of the chymotrypsin-like activity of the 26S proteasome. leading to cell death	6/20/2008	Initial treatment of multiple myeloma	17100	T1: OL RCT MCT	682	TTP	Y	N
56.	fludarabine phosphate tablets (OFORTA®)	A synthetic purine nucleotide whose metabolite inhibits DNA polymerase alpha, gamma, and delta, and inhibits ribonucleoside diphosphate reductase, thus inhibiting DNA synthesis	12/18/2008	Adult patients with B-cell chronic lymphocytic leukemia (CLL) whose disease has not responded to or has progressed during or after treatment with at least one standard alkylating-agent containing regimen	15000	T1: OL SA MCT	78	ORR	N	Y
57.	bevacizumab (AVASTIN®)	A vascular endothelial growth factor (VEGF)-specific angiogenesis inhibitor	5/5/2009	Glioblastoma with progressive disease following prior therapy as a single agent.	8000	T1: OL SA MCT	163	ORR	Y	Y
	bevacizumab (AVASTIN®)					T2: OL SA SCT	56			

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	Name	Mechanism of Action	Approval Date	Indication	Approximate Incidence per 100,000 per Year	Trial Design	Sample Size (N)	Endpoint	Priority Review	Accelerated Approval
58.	pralatrexate injection (FOLOTYN®)	Folate analogue metabolic inhibitor of dihydrofolate reductase and competitive inhibitor for polyglutamylation by the enzyme folylpolyglutamyl synthetase	9/24/2009	Relapsed or refractory peripheral T-cell lymphoma	9500	T1: OL SA MCT	115	ORR	Y	Y
59.	ofatumumab (ARZERRa®)	A CD20-directed cytolytic monoclonal antibody	10/26/2009	Chronic lymphocytic leukemia (CLL) refractory to alemtuzumab and fludarabine	15000	T1: OL SA MCT	59	ORR	N	Y
	ofatumumab (ARZERRa®)					T2: OL SA MCT	33			
60.	romidepsin (ISTODAX®)	A histone deacetylase (HDAC) inhibitor	11/5/2009	Cutaneous T-cell lymphoma (CTCL) in patients who have received at least one prior systemic therapy	2000	T1: OL SA MCT	96	ORR	N	N
	romidepsin (ISTODAX®)					T2: OL SA MCT	71			

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	Name	Mechanism of Action	Approval Date	Indication	Approximate Incidence per 100,000 per Year	Trial Design	Sample Size (N)	Endpoint	Priority Review	Accelerated Approval
61.	rituximab (RITUXAN®)	A CD20-directed cytolytic antibody	2/18/2010	Treatment of patients previously untreated for CD20-positive chronic lymphocytic leukemia (CLL) in combination with fludarabine and cyclophosphamide (FC)	15000	T1: OL RCT MCT	817	PFS	N	N
62.	rituximab (RITUXAN®)	A CD20-directed cytolytic antibody	2/18/2010	Patients previously treated for CD20-positive chronic lymphocytic leukemia (CLL) in combination with fludarabine and cyclophosphamide (FC)	15000	T1: OL RCT MCT	552	PFS	N	N
63.	nilotinib (TASIGNA®)	A kinase inhibitor that inhibits the Bcr-Abl	6/17/2010	Adult patients with newly diagnosed Philadelphia 13 chromosome positive chronic myeloid leukemia (Ph+ CML) in chronic phase.	5000	T1: OL RCT MCT+ S	846	ORR	Y	Y
64.	dasatinib (SPRYCEL®)	A protein-tyrosine kinase inhibitor that inhibits the Bcr-Abl	10/28/2010	Newly diagnosed patients with CP-CML	4800	T1: OL RCT MCT	519	ORR	Y	Y
65.	everolimus (AFINITOR®)	An inhibitor of mammalian target of rapamycin (mTOR), a serine-threonine kinase, downstream of the PI3K/AKT pathway	10/29/2010	SEGA associated TS, candidates who require therapeutic intervention but are not candidates for curative surgical resection	<3000	T1: OL SA MCT	28	ORR	Y	Y
66.	vandetanib (CAPRELSA®)	A kinase inhibitor	4/6/2011	Symptomatic or progressive medullary thyroid cancer in patients with	2000	T1: DB RCT MCT + PC	331	PFS	Y	N

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	Name	Mechanism of Action	Approval Date	Indication	Approximate Incidence per 100,000 per Year	Trial Design	Sample Size (N)	Endpoint	Priority Review	Accelerated Approval
				unresectable locally advanced or metastatic disease						
67.	everolimus (AFINITOR®)	An inhibitor of mammalian target of rapamycin (mTOR), a serine-threonine kinase, downstream of the PI3K/AKT pathway	5/5/2011	Progressive neuroendocrine tumors of pancreatic origin (PNET) that are unresectable, locally advanced, or metastatic	<3000	T1: DB RCT MCT+ S	410	PFS	Y	N
68.	sunitinib malate (SUTENT®)	A small molecule that inhibits multiple receptor tyrosine kinases (RTKs), some of which are implicated in tumor growth, pathologic angiogenesis, and metastatic progression of cancer	5/20/2011	Progressive, well-differentiated pancreatic neuroendocrine tumors in patients with unresectable, locally advanced, or metastatic disease	<3000	T1: DB RCT MCT + PC	171	PFS	Y	N

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