

## 2015 Medicines in Development -- Leukemia & Lymphoma

### A Report on Cancers of the Blood

#### Hematological Malignancies

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
ABT-199/GDC-0199 (Bcl-2 inhibitor)	AbbVie <i>North Chicago, IL</i> Genentech <i>South San Francisco, CA</i>	hematological malignancies (see also leukemia, lymphoma)	Phase I <a href="http://www.abbvie.com">www.abbvie.com</a> <a href="http://www.gene.com">www.gene.com</a>
AG-120 (IDH1 inhibitor)	Agios Pharmaceuticals <i>Cambridge, MA</i>	advanced hematological malignancies	Phase I <a href="http://www.agios.com">www.agios.com</a>
AGS67E (antibody drug conjugate)	Agensys <i>Santa Monica, CA</i>	relapsed/refractory lymphoid malignancies	Phase I <a href="http://www.agensys.com">www.agensys.com</a>
ALT-803 (IL-15 superagonist complex)	Altor BioScience <i>Miramar, FL</i>	hematological malignancies (see also myeloma)	Phase I/II <a href="http://www.altorbioscience.com">www.altorbioscience.com</a>
AMG 319 (PI3K-delta inhibitor)	Amgen <i>Thousand Oaks, CA</i>	hematological malignancies	Phase I <a href="http://www.amgen.com">www.amgen.com</a>
AMG 900 (aurora kinase inhibitor)	Amgen <i>Thousand Oaks, CA</i>	hematological malignancies	Phase I <a href="http://www.amgen.com">www.amgen.com</a>
anti-LAG3	Bristol-Myers Squibb <i>Princeton, NJ</i>	hematological malignancies	Phase I <a href="http://www.bms.com">www.bms.com</a>
APTO-253 (MTF-1 inhibitor)	Aptose Biosciences <i>San Diego, CA</i>	relapsed/refractory hematological malignancies	Phase I <a href="http://www.aptose.com">www.aptose.com</a>

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AR-42 (pan-DAC inhibitor)	Arno Therapeutics <i>Flemington, NJ</i>	relapsed/refractory hematological malignancies	Phase I/II <a href="http://www.arnothera.com">www.arnothera.com</a>
AZD9150 (STAT3 inhibitor)	AstraZeneca <i>Wilmington, DE</i> Isis Pharmaceuticals <i>Carlsbad, CA</i>	hematological malignancies	Phase I <a href="http://www.astrazeneca.com">www.astrazeneca.com</a> <a href="http://www.isispharm.com">www.isispharm.com</a>
BGJ398 (FGF-R kinase inhibitor)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	hematological malignancies	Phase II <a href="http://www.novartis.com">www.novartis.com</a>
BKM120 (PI3K inhibitor)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	hematological malignancies	Phase II <a href="http://www.novartis.com">www.novartis.com</a>
BPX-501 (T cell replacement therapy)	Bellicum Pharmaceuticals <i>Houston, TX</i>	bone marrow transplantation in hematological malignancies	Phase I/II <a href="http://www.bellicum.com">www.bellicum.com</a>
CB-839 (glutaminase inhibitor)	Calithera Biosciences <i>South San Francisco, CA</i>	hematological malignancies	Phase I <a href="http://www.calithera.com">www.calithera.com</a>
duvelisib (PI3K-delta/gamma inhibitor)	AbbVie <i>North Chicago, IL</i> Infinity Pharmaceuticals <i>Cambridge, MA</i>	advanced hematological malignancies (see also leukemia, lymphoma)	Phase I <a href="http://www.abbvie.com">www.abbvie.com</a> <a href="http://www.infi.com">www.infi.com</a>
entopletinib (Syk inhibitor)	Gilead Sciences <i>Foster City, CA</i>	hematological malignancies	Phase II <a href="http://www.gilead.com">www.gilead.com</a>

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FF-10501 (cell differentiation stimulant)	Boston Strategics <i>Boston, MA</i> FUJIFILM Pharmaceuticals USA <i>Boston, MA</i>	hematological malignancies	Phase I/II <a href="http://www.bostonstrategics.com">www.bostonstrategics.com</a>
GS-4059 (Btk inhibitor)	Gilead Sciences <i>Foster City, CA</i>	B-cell malignancies	Phase II <a href="http://www.gilead.com">www.gilead.com</a>
GS-9901 (PI3K-delta inhibitor)	Gilead Sciences <i>Foster City, CA</i>	hematological malignancies	Phase I <a href="http://www.gilead.com">www.gilead.com</a>
HDM201 (tumor suppressor protein p53 modulator)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	hematological malignancies	Phase I <a href="http://www.novartis.com">www.novartis.com</a>
HSC835 (stem cell therapy)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	hematological malignancies	Phase I/II <a href="http://www.novartis.com">www.novartis.com</a>
INCB39110+INCB40093 (JAK1+PI3K-delta inhibitor)	Incyte <i>Wilmington, DE</i>	B-lymphoid malignancies	Phase II <a href="http://www.incyte.com">www.incyte.com</a>
INCB52793 (JAK1 inhibitor)	Incyte <i>Wilmington, DE</i>	advanced hematological malignancies	Phase I <a href="http://www.incyte.com">www.incyte.com</a>
JCAR014 (T lymphocyte immunotherapy)	Juno Therapeutics <i>Seattle, WA</i>	adult B-cell malignancies	Phase I/II <a href="http://www.junotherapeutics.com">www.junotherapeutics.com</a>
<b>Keytruda®</b> pembrolizumab	Merck <i>Whitehouse Station, NJ</i>	hematological malignancies (see also myeloma)	Phase I <a href="http://www.merck.com">www.merck.com</a>

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LDE225 (Smo antagonist)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	PTCH1 or SMO-activated hematological tumors (see also leukemia, myeloproliferative)	Phase II <a href="http://www.novartis.com">www.novartis.com</a>
LEE011 (CDK4/6 inhibitor)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	hematological malignancies (CDK4/6 pathway activation)	Phase II <a href="http://www.novartis.com">www.novartis.com</a>
MEDI-551+rituximab (anti-CD19 mAb+anti-CD20 mAb)	MedImmune <i>Gaithersburg, MD</i>	hematological malignancies (see also leukemia, lymphoma)	Phase I <a href="http://www.medimmune.com">www.medimmune.com</a>
MRX34 (liposome-encapsulated miR-34 mimic)	Mirna Therapeutics <i>Austin, TX</i>	hematological malignancies	Phase I <a href="http://www.mirnarx.com">www.mirnarx.com</a>
<b>NiCord</b> <sup>®</sup> cord blood stem cell therapy	Gamida Cell <i>Jerusalem, Israel</i>	hematological malignancies	Phase I/II <a href="http://www.gamida-cell.com">www.gamida-cell.com</a>
OMP-52M51 (NOTCH-1 inhibitor)	GlaxoSmithKline <i>Research Triangle Park, NC</i> OncoMed Pharmaceuticals <i>Redwood City, CA</i>	hematological malignancies	Phase I <a href="http://www.oncomed.com">www.oncomed.com</a>
<b>Opdivo</b> <sup>™</sup> nivolumab	Bristol-Myers Squibb <i>Princeton, NJ</i>	hematological malignancies (see also leukemia, lymphoma, myeloma)	Phase I <a href="http://www.bms.com">www.bms.com</a>
oprozomib (proteasome inhibitor) ORPHAN DRUG	Onyx Pharmaceuticals <i>South San Francisco, CA</i>	relapsed/refractory hematological malignancies (see also myeloma)	Phase I/II <a href="http://www.onyx.com">www.onyx.com</a>

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RG7388 (MDM2 antagonist)	Genentech <i>South San Francisco, CA</i>	hematological malignancies	Phase I <a href="http://www.gene.com">www.gene.com</a>
SAR3419 (maytansin-loaded anti-CD19 mAb)	Sanofi US <i>Bridgewater, NJ</i>	B-cell relapsed/refractory malignancies	Phase II <a href="http://www.sanofi.com">www.sanofi.com</a>
SL-401 (IL-3R inhibitor)	Stemline Therapeutics <i>New York, NY</i> Leukemia & Lymphoma Society <i>White Plains, NY</i>	blastic plasmacytoid dendritic cell neoplasms (see also leukemia, myeloproliferative)	Phase I/II <a href="http://www.stemline.com">www.stemline.com</a> <a href="http://www.lls.org">www.lls.org</a>
SNX-5422 (Hsp90 inhibitor)	Esanex <i>Indianapolis, IN</i>	refractory hematological malignancies	Phase I
<b>StemEx</b> <sup>®</sup> carlecortemcel-L ORPHAN DRUG	Gamida Cell-Teva Joint Venture <i>Jerusalem, Israel</i>	hematological malignancies (Fast Track)	Phase II/III completed <a href="http://www.gamida-cell.com">www.gamida-cell.com</a>
TAK-659 (SYK kinase inhibitor)	Millennium Pharmaceuticals <i>Cambridge, MA</i>	hematological malignancies	Phase I <a href="http://www.millennium.com">www.millennium.com</a>
TGR-1202 (PI3K-delta inhibitor)	TG Therapeutics <i>New York, NY</i>	hematological malignancies	Phase I <a href="http://www.tgtherapeutics.com">www.tgtherapeutics.com</a>
TKI258 (dovitinib)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	hematological malignancies (pathway activated)	Phase II <a href="http://www.novartis.com">www.novartis.com</a>

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TZ101 (human recombinant enzyme) ORPHAN DRUG	Targazyme <i>San Antonio, TX</i>	cord blood stem cell transplantation for hematological malignancies	Phase I/II <a href="http://www.targazyme.com">www.targazyme.com</a>
ulocuplumab (anti-CXCR4)	Bristol-Myers Squibb <i>Princeton, NJ</i>	hematological malignancies	Phase I <a href="http://www.bms.com">www.bms.com</a>
urelumab	Bristol-Myers Squibb <i>Princeton, NJ</i>	hematological malignancies (see also myeloma)	Phase I <a href="http://www.bms.com">www.bms.com</a>
urelumab+ <b>Opdivo™</b> nivolumab	Bristol-Myers Squibb <i>Princeton, NJ</i>	hematological malignancies	Phase I <a href="http://www.bms.com">www.bms.com</a>
varlilumab (CD27 antigen inhibitor)	Celldex Therapeutics <i>Hampton, NJ</i>	hematological malignancies	Phase I <a href="http://www.celldex.com">www.celldex.com</a>
WT2725 (cancer immunotherapy)	Sunovion Pharmaceuticals <i>Marlborough, MA</i>	hematological malignancies	Phase I <a href="http://www.sunovion.com">www.sunovion.com</a>

## Leukemia

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
Å6 peptide (CD44 antigen stimulant)	Angstrom Pharmaceuticals <i>Solana Beach, CA</i>	chronic lymphocytic leukemia (CLL) (1st-line), small lymphocytic leukemia (1st-line)	Phase II <a href="http://www.angstrominc.com">www.angstrominc.com</a>
ABL001 (Bcr-Abl kinase inhibitor)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	chronic myeloid leukemia (CML), Philadelphia- positive acute lymphoblastic leukemia (Ph+ ALL)	Phase I <a href="http://www.novartis.com">www.novartis.com</a>

## Leukemia

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ABT-199/GDC-0199  
(Bcl-2 inhibitor)

AbbVie  
North Chicago, IL  
Genentech  
South San Francisco, CA

relapsed/refractory CLL (combination therapy),  
CLL (1st-line) (combination therapy)  
(see also hematological, lymphoma)

Phase III  
[www.abbvie.com](http://www.abbvie.com)  
[www.gene.com](http://www.gene.com)

relapsed/refractory CLL (17pdel)

Phase II  
[www.abbvie.com](http://www.abbvie.com)  
[www.gene.com](http://www.gene.com)

CLL (combination therapy)

Phase I  
[www.abbvie.com](http://www.abbvie.com)  
[www.gene.com](http://www.gene.com)

ACP-196  
(Btk inhibitor)

Acerta Pharma  
San Carlos, CA  
National Institutes of Health  
Rockville, MD

relapsed/refractory B-cell CLL,  
small lymphocytic leukemia  
(see also lymphoma)

Phase II  
[www.acerta-pharma.com](http://www.acerta-pharma.com)

ACP-319

Acerta Pharma  
San Carlos, CA

B-cell ALL (combination therapy)  
(see also lymphoma, myeloma)

Phase I/II  
[www.acerta-pharma.com](http://www.acerta-pharma.com)

relapsed/refractory CLL (combination therapy)

Phase I  
[www.acerta-pharma.com](http://www.acerta-pharma.com)

ADI-PEG 20  
(PEG arginine deiminase)

Polaris Pharmaceuticals  
San Diego, CA

acute myeloid leukemia (AML)  
(see also lymphoma)

Phase II  
[www.polarispharma.com](http://www.polarispharma.com)

## Leukemia

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AG-221 (IDH2 inhibitor) ORPHAN DRUG	Agios Pharmaceuticals <i>Cambridge, MA</i> Celgene <i>Summit, NJ</i>	AML	Phase I <a href="http://www.agios.com">www.agios.com</a> <a href="http://www.celgene.com">www.celgene.com</a>
alvocidib (CDK inhibitor) ORPHAN DRUG	Tolero Pharmaceuticals <i>Lehi, UT</i>	AML (1st-line)	Phase II <a href="http://www.toleropharma.com">www.toleropharma.com</a>
		relapsed/refractory AML	Phase I <a href="http://www.toleropharma.com">www.toleropharma.com</a>
AMG 232 (MDM2 inhibitor)	Amgen <i>Thousand Oaks, CA</i>	AML	Phase I <a href="http://www.amgen.com">www.amgen.com</a>
anti-CD22-CAR transduced T-cells	Opus Bio <i>Gaithersburg, MD</i> National Cancer Institute <i>Bethesda, MD</i>	ALL (see also lymphoma)	Phase I <a href="http://www.opusbio.com">www.opusbio.com</a>
<b>Arzerra®</b> ofatumumab ORPHAN DRUG	GlaxoSmithKline <i>Research Triangle Park, NC</i>	relapsed CLL (see also lymphoma)	Phase III <a href="http://www.gsk.com">www.gsk.com</a>
ASP2215 (gilteritinib)	Astellas Pharma US <i>Northbrook, IL</i>	relapsed/refractory AML	Phase I/II <a href="http://www.astellas.com">www.astellas.com</a>
AST-VAC1 (telomerase-based cancer vaccine)	Asterias Biotherapeutics <i>Menlo Park, CA</i>	AML	Phase II completed <a href="http://www.asteriasbiotherapeutics.com">www.asteriasbiotherapeutics.com</a>

## Leukemia

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
ATTCK20 (viral-ACTR+anti-CD20)	Unum Therapeutics <i>Cambridge, MA</i>	CLL (see also lymphoma)	Phase I <a href="http://www.unumrx.com">www.unumrx.com</a>
bendamustine ready-to-dilute liquid formulation ORPHAN DRUG	Eagle Pharmaceuticals <i>Woodcliff Lake, NJ</i>	CLL (see also lymphoma)	application submitted <a href="http://www.eagleus.com">www.eagleus.com</a>
BI 811283 (aurora B kinase inhibitor)	Boehringer Ingelheim Pharmaceuticals <i>Ridgefield, CT</i>	AML	Phase II completed <a href="http://www.boehringer-ingelheim.com">www.boehringer-ingelheim.com</a>
BI 836826	Boehringer Ingelheim Pharmaceuticals <i>Ridgefield, CT</i>	CLL	Phase I <a href="http://www.boehringer-ingelheim.com">www.boehringer-ingelheim.com</a>
BI 836858	Boehringer Ingelheim Pharmaceuticals <i>Ridgefield, CT</i>	AML (see also myelodysplastic)	Phase I <a href="http://www.boehringer-ingelheim.com">www.boehringer-ingelheim.com</a>
BL-8040 (CXCR4 receptor antagonist) ORPHAN DRUG	BioLineRx <i>Jerusalem, Israel</i>	AML (combination therapy)	Phase II <a href="http://www.biolinerx.com">www.biolinerx.com</a>
<b>Bosulif</b> <sup>®</sup> bosutinib ORPHAN DRUG	Pfizer <i>New York, NY</i>	CML (1st-line)	Phase III <a href="http://www.pfizer.com">www.pfizer.com</a>
BP-100-1.01 (liposomal Grb-2) ORPHAN DRUG	Bio-Path Holdings <i>Houston, TX</i>	ALL, AML, CML (see also myelodysplastic)	Phase I <a href="http://www.biopathholdings.com">www.biopathholdings.com</a>

## Leukemia

### Product Name

### Sponsor

### Indication

### Development Status

BVD-523  
(ERK 1/2 kinase inhibitor)

BioMed Valley Discoveries  
*Kansas City, MO*

AML  
(see also myelodysplastic)

Phase I/II  
[www.biomed-valley.com](http://www.biomed-valley.com)

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CC-486  
(azacitidine)

Celgene  
*Summit, NJ*

post-induction AML maintenance  
(see also myelodysplastic)

Phase III  
[www.celgene.com](http://www.celgene.com)

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cerdulatinib  
(dual Syk/JAK inhibitor)

Portola Pharmaceuticals  
*South San Francisco, CA*

CLL  
(see also lymphoma)

Phase I  
[www.portola.com](http://www.portola.com)

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CNDO-109  
(natural killer cell stimulant)  
ORPHAN DRUG

Coronado Biosciences  
*Burlington, MA*

AML

Phase I/II  
[www.coronadobiosciences.com](http://www.coronadobiosciences.com)

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CPI-0610  
(BET protein inhibitor)

Constellation Pharmaceuticals  
*Cambridge, MA*  
Leukemia & Lymphoma Society  
*White Plains, NY*

acute leukemia  
(see also lymphoma, myelodysplastic, myeloma,  
myeloproliferative)

Phase I  
[www.constellationpharma.com](http://www.constellationpharma.com)  
[www.lls.org](http://www.lls.org)

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CPX-351  
(cytarabine/daunorubicin liposomal)  
ORPHAN DRUG

Celator Pharmaceuticals  
*Ewing, NJ*  
Leukemia & Lymphoma Society  
*White Plains, NY*

secondary AML (Fast Track)

Phase III  
[www.celatorpharma.com](http://www.celatorpharma.com)  
[www.lls.org](http://www.lls.org)

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## Leukemia

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
crenolanib (PDGFR kinase inhibitor)	Arog Pharmaceuticals <i>Dallas, TX</i>	relapsed/refractory AML	Phase III <a href="http://www.arogpharma.com">www.arogpharma.com</a>
		newly diagnosed AML, post bone marrow transplant in AML (maintenance therapy)	Phase II <a href="http://www.arogpharma.com">www.arogpharma.com</a>
		AML (combination therapy)	Phase I <a href="http://www.arogpharma.com">www.arogpharma.com</a>
CSL362 (anti-CD123 mAb)	CSL <i>Victoria, Australia</i> Janssen Research & Development <i>Raritan, NJ</i>	AML	Phase I <a href="http://www.csl.com.au">www.csl.com.au</a> <a href="http://www.janssenrnd.com">www.janssenrnd.com</a>
CTL019 (chimeric antigen receptor T-cell therapy)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	relapsed/refractory ALL (Breakthrough Therapy) (see also lymphoma)	Phase II <a href="http://www.novartis.com">www.novartis.com</a>
CWP232291 (Wnt signaling pathway inhibitor)	JW Pharmaceutical <i>Seoul, Korea</i>	AML	Phase I
DFP-10917 (cell cycle inhibitor)	Delta-Fly Pharma <i>Tokushima, Japan</i>	ALL, AML	Phase I/II

## Leukemia

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duvelisib (PI3K-delta/gamma inhibitor) ORPHAN DRUG	AbbVie <i>North Chicago, IL</i> Infinity Pharmaceuticals <i>Cambridge, MA</i>	relapsed/refractory CLL (see also hematological, lymphoma)	Phase III <a href="http://www.abbvie.com">www.abbvie.com</a> <a href="http://www.infi.com">www.infi.com</a>
		relapsed/refractory CLL (combination therapy)	Phase I <a href="http://www.abbvie.com">www.abbvie.com</a> <a href="http://www.infi.com">www.infi.com</a>
EPZ-5676 (DOT-1L inhibitor) ORPHAN DRUG	Celgene <i>Summit, NJ</i> Epizyme <i>Cambridge, MA</i>	AML (altered MLL gene)	Phase I <a href="http://www.celgene.com">www.celgene.com</a> <a href="http://www.epizyme.com">www.epizyme.com</a>
<b>Erwinaze®</b> <i>asparaginase erwinia</i> <i>chrysanthemi</i> intravenous ORPHAN DRUG	Jazz Pharmaceuticals <i>Palo Alto, CA</i>	ALL in young adults	Phase II <a href="http://www.jazzpharm.com">www.jazzpharm.com</a>
ERY-ASP (asparaginase modulator) ORPHAN DRUG	ERYTECH Pharmaceuticals <i>Lyon, France</i>	ALL (adults)	Phase I/II <a href="http://www.erytech.com">www.erytech.com</a>
EZN-2285 (calaspargase pegol)	Sigma-Tau Pharmaceuticals <i>Gaithersburg, MD</i>	ALL	Phase III completed <a href="http://www.sigmatau.com">www.sigmatau.com</a>
ganetespib (Hsp-90 inhibitor)	Synta Pharmaceuticals <i>Lexington, MA</i>	AML	Phase II/III <a href="http://www.syntapharma.com">www.syntapharma.com</a>

## Leukemia

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GMI-1271 (E-selectin antagonist)	GlycoMimetics <i>Gaithersburg, MD</i> University of Michigan <i>Ann Arbor, MI</i>	AML	Phase I <a href="http://www.glycomimetics.com">www.glycomimetics.com</a>
GO-203-2c (MUC1 inhibitor)	Genus Oncology <i>Vernon Hills, IL</i> Dana-Farber Cancer Institute <i>Boston, MA</i>	relapsed/refractory AML	Phase I/II <a href="http://www.genusoncology.com">www.genusoncology.com</a>
GSK2879552 (LSD1)/co-repressor protein inhibitor)	GlaxoSmithKline <i>Research Triangle Park, NC</i>	relapsed/refractory AML	Phase I <a href="http://www.gsk.com">www.gsk.com</a>
HSV-Tk (thymidine kinase cell therapy) ORPHAN DRUG	MolMed <i>Milan, Italy</i>	high-risk acute leukemia	Phase III <a href="http://www.molmed.com">www.molmed.com</a>
Iclusig® ponatinib ORPHAN DRUG	ARIAD Pharmaceuticals <i>Cambridge, MA</i>	FLT3-positive AML, Ph+ALL (combination therapy)	Phase II <a href="http://www.ariad.com">www.ariad.com</a>
IGN523 mAb (anti-CD98 mAb)	Igenica Biotherapeutics <i>Burlingame, CA</i>	AML	Phase I <a href="http://www.igenica.com">www.igenica.com</a>
Imbruvica® ibrutinib ORPHAN DRUG	Janssen Research & Development <i>Raritan, NJ</i> Pharmacyclics <i>Sunnyvale, CA</i>	relapsed/refractory CLL (combination therapy), treatment naïve CLL (see also lymphoma)	Phase III <a href="http://www.janssenrnd.com">www.janssenrnd.com</a> <a href="http://www.pharmacyclics.com">www.pharmacyclics.com</a>

## Leukemia

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IMMU-114 (anti-HLA-DR antibody)	Immunomedics <i>Morris Plains, NJ</i>	CLL (see also lymphoma)	Phase I <a href="http://www.immunomedics.com">www.immunomedics.com</a>
<b>Imprime PGG®</b> intravenous immunostimulant	Biothera <i>Eagan, MN</i> Mayo Clinic <i>Rochester, MN</i>	high-risk CLL (combination therapy) (see also lymphoma)	Phase II <a href="http://www.biothera.com">www.biothera.com</a>
inotuzumab ozogamicin (CD22-targeted cytotoxic agent) ORPHAN DRUG	Pfizer <i>New York, NY</i>	ALL	Phase III <a href="http://www.pfizer.com">www.pfizer.com</a>
<b>Iomab™-B</b> BC8-I-131 construct	Actinium Pharmaceuticals <i>New York, NY</i>	hematopoietic stem cell transplantation (HSCT) in relapsed/refractory AML	Phase II <a href="http://www.actiniumpharma.com">www.actiniumpharma.com</a>
JCAR015 (T lymphocyte immunotherapy) ORPHAN DRUG	Juno Therapeutics <i>Seattle, WA</i>	adult ALL (see also lymphoma)	Phase I <a href="http://www.junotherapeutics.com">www.junotherapeutics.com</a>
JCAR017 (T lymphocyte immunotherapy)	Juno Therapeutics <i>Seattle, WA</i>	pediatric ALL	Phase I/II <a href="http://www.junotherapeutics.com">www.junotherapeutics.com</a>
JTCR016 (T lymphocyte immunotherapy)	Juno Therapeutics <i>Seattle, WA</i>	adult AML	Phase I/II <a href="http://www.junotherapeutics.com">www.junotherapeutics.com</a>
JZP-416 (recombinant L-asparaginase) ORPHAN DRUG	Jazz Pharmaceuticals <i>Palo Alto, CA</i>	ALL in adolescents and children (FAST TRACK)	Phase II <a href="http://www.jazzpharm.com">www.jazzpharm.com</a>

## Leukemia

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
KB004 (EphA3 receptor antagonist)	KaloBios Pharmaceuticals <i>South San Francisco, CA</i>	EphA3-positive AML (see also myelodysplastic, myeloproliferative)	Phase II <a href="http://www.kalobios.com">www.kalobios.com</a>
KX01 (non-ATP competitive Sre kinase inhibitor)	Kinex Pharmaceuticals <i>Buffalo, NY</i>	AML	Phase I completed <a href="http://www.kinexpharma.com">www.kinexpharma.com</a>
LDE225 (Smo antagonist)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	relapsed/refractory acute leukemia (see also hematological, myeloproliferative)	Phase II <a href="http://www.novartis.com">www.novartis.com</a>
LGH447 (proto oncogene protein c pim-1 inhibitor)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	AML (see also myelodysplastic, myeloma)	Phase I <a href="http://www.novartis.com">www.novartis.com</a>
lintuzumab Ac-225 (CD33-antigen inhibitor) ORPHAN DRUG	Actinium Pharmaceuticals <i>New York, NY</i>	AML in the elderly (1st-line)	Phase I/II <a href="http://www.actiniumpharma.com">www.actiniumpharma.com</a>
LOP628 (antibody-drug conjugate)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	c-Kit-positive AML	Phase I <a href="http://www.novartis.com">www.novartis.com</a>
<b>Marqibo</b> <sup>®</sup> vinCRISTine sulfate LIPOSOME injection ORPHAN DRUG	Spectrum Pharmaceuticals <i>Henderson, NV</i>	elderly Ph-negative ALL (1st-line) (Fast Track) (see also lymphoma)	Phase III <a href="http://www.sppirx.com">www.sppirx.com</a>
MEDI-551 (anti-CD19 mAb)	MedImmune <i>Gaithersburg, MD</i>	CLL (see also hematological, lymphoma)	Phase II <a href="http://www.medimmune.com">www.medimmune.com</a>

## Leukemia

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
<b>Mekinist®</b> trametinib	GlaxoSmithKline <i>Research Triangle Park, NC</i>	hairy cell leukemia (BRAF-V600E-mutation)	Phase II <a href="http://www.gsk.com">www.gsk.com</a>
MGD006 (CD123/CD3 bispecific antibody)	MacroGenics <i>Rockville, MD</i>	AML	Phase I <a href="http://www.macrogenics.com">www.macrogenics.com</a>
milatuzumab-doxorubicin (antibody-drug conjugate)	Immunomedics <i>Morris Plains, NJ</i>	CLL (see also lymphoma)	Phase I/II <a href="http://www.immunomedics.com">www.immunomedics.com</a>
MLN4924 (Nedd8-activating enzyme inhibitor)	Millennium Pharmaceuticals <i>Cambridge, MA</i>	AML	Phase I <a href="http://www.millennium.com">www.millennium.com</a>
mogamulizumab (anti-CCR4 humanized antibody) ORPHAN DRUG	Kyowa Hakko Pharma <i>Princeton, NJ</i>	adult T-cell leukemia (see also lymphoma)	Phase II <a href="http://www.kyowa-kirin.com">www.kyowa-kirin.com</a>
MOR208 (CD19 antigen inhibitor) ORPHAN DRUG	MorphoSys <i>Martinsried, Germany</i> Xencor <i>Monrovia, VA</i>	ALL, CLL (see also lymphoma)	Phase II <a href="http://www.morphosys.com">www.morphosys.com</a> <a href="http://www.xencor.com">www.xencor.com</a>
moxetumomab pasudotox (anti-CD22 recombinant immunotoxin)	MedImmune <i>Gaithersburg, MD</i>	hairy cell leukemia	Phase III <a href="http://www.medimmune.com">www.medimmune.com</a>
		pediatric ALL	Phase II <a href="http://www.medimmune.com">www.medimmune.com</a>

## Leukemia

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
Notch inhibitor	Bristol-Myers Squibb <i>Princeton, NJ</i>	lymphoblastic leukemia	Phase I <a href="http://www.bms.com">www.bms.com</a>
ODSH (low anticoagulant heparin derivative)	Cantex Pharmaceuticals <i>Weston, FL</i>	AML (1st-line)	Phase II <a href="http://www.cantex.com">www.cantex.com</a>
<b>Oncoquest™-CLL</b> personalized CLL vaccine	XEME Biopharma <i>Monmouth Junction, NJ</i>	CLL (1st-line)	Phase I <a href="http://www.xemebiopharma.com">www.xemebiopharma.com</a>
<b>Opdivo™</b> nivolumab+ <b>Sprycel®</b> dasatinib	Bristol-Myers Squibb <i>Princeton, NJ</i>	CML	Phase I <a href="http://www.bms.com">www.bms.com</a>
otlertuzumab (CD37 protein inhibitor) ORPHAN DRUG	Emergent BioSolutions <i>Rockville, MD</i>	CLL	Phase II <a href="http://www.emergentbiosolutions.com">www.emergentbiosolutions.com</a>
OXi4503 (vascular disrupting agent) ORPHAN DRUG	OXiGENE <i>South San Francisco, CA</i>	AML (see also myelodysplastic)	Phase I <a href="http://www.oxigene.com">www.oxigene.com</a>
PF-04449913 (SMO antagonist)	Pfizer <i>New York, NY</i>	AML	Phase II <a href="http://www.pfizer.com">www.pfizer.com</a>
PKC412 (signal transduction inhibitor) ORPHAN DRUG	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	AML	Phase III <a href="http://www.novartis.com">www.novartis.com</a>

## Leukemia

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
PLX3397 (Fms/Kit/Flt3-ITD inhibitor)	Plexxikon <i>Berkeley, CA</i>	relapsed/refractory AML	Phase II <a href="http://www.plexxikon.com">www.plexxikon.com</a>
PLX8394 (BRAF inhibitor)	Plexxikon <i>Berkeley, CA</i>	hairy cell leukemia	Phase I <a href="http://www.plexxikon.com">www.plexxikon.com</a>
PM01183 (marine-derived alkylating agent)	PharmaMar <i>Madrid, Spain</i>	acute leukemia	Phase I <a href="http://www.pharmamar.com">www.pharmamar.com</a>
pracinostat (HDAC inhibitor) ORPHAN DRUG	MEI Pharma <i>San Diego, CA</i>	AML (1st-line) (see also myelodysplastic)	Phase II <a href="http://www.meipharma.com">www.meipharma.com</a>
PRI-724 (CBP/beta-catenin inhibitor)	PRISM Pharma <i>Tokyo, Japan</i>	AML, CML	Phase I/II <a href="http://www.prismbiolab.com">www.prismbiolab.com</a>
<b>Promacta</b> <sup>®</sup> eltrombopag	GlaxoSmithKline <i>Research Triangle Park, NC</i>	AML (see also myelodysplastic)	Phase II <a href="http://www.gsk.com">www.gsk.com</a>
<b>Qinprezo</b> <sup>™</sup> vosaroxin (type II DNA topoisomerase inhibitor)	Sunesis Pharmaceuticals <i>South San Francisco, CA</i>	relapsed/refractory AML (combination therapy) (Fast Track)	Phase III <a href="http://www.sunesis.com">www.sunesis.com</a>
quizartinib (FLT3 inhibitor) ORPHAN DRUG	Ambit Biosciences <i>San Diego, CA</i>	relapsed/refractory AML (Fast Track)	Phase III <a href="http://www.ambitbio.com">www.ambitbio.com</a>

## Leukemia

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
REGN1979 (anti-CD20/anti-CD3 mAb)	Regeneron Pharmaceuticals <i>Tarrytown, NY</i>	CLL (see also lymphoma)	Phase I <a href="http://www.regeneron.com">www.regeneron.com</a>
<b>Revlimid®</b> lenalidomide ORPHAN DRUG	Celgene <i>Summit, NJ</i>	CLL (2nd-line maintenance therapy) (see also lymphoma, myelodysplastic, myeloma)	Phase III <a href="http://www.celgene.com">www.celgene.com</a>
rexlemestrocel-L (mesenchymal precursor cells) ORPHAN DRUG	Mesoblast <i>New York, NY</i>	ALL or AML in patients undergoing transplantation with myeloablative conditioning (see also lymphoma)	Phase III <a href="http://www.mesoblast.com">www.mesoblast.com</a>
RG7775 (MDM2 IV prodrug)	Genentech <i>South San Francisco, CA</i>	AML	Phase I <a href="http://www.gene.com">www.gene.com</a>
RP-323 (tetradecanoylphorbol acetate)	Rich Pharmaceuticals <i>Beverly Hills, CA</i>	AML	Phase II <a href="http://www.richpharmaceuticals.com">www.richpharmaceuticals.com</a>
sapacitabine (DNA-directed DNA polymerase inhibitor) ORPHAN DRUG	Cyclacel Pharmaceuticals <i>Berkeley Heights, NJ</i>	AML in elderly (1st-line) (see also myelodysplastic)	Phase III <a href="http://www.cyclacel.com">www.cyclacel.com</a>
selinexor (exportin-1 protein inhibitor/nuclear nuclear inhibitor) ORPHAN DRUG	Karyopharm Therapeutics <i>Newton, MA</i>	AML, CLL (Richter's transformation) (see also lymphoma, myeloma)	Phase II <a href="http://www.karyopharm.com">www.karyopharm.com</a>
SGI110 (DNMT1 inhibitor)	Astex Pharmaceuticals <i>Dublin, CA</i>	AML (see also myelodysplastic)	Phase II <a href="http://www.astx.com">www.astx.com</a>

## Leukemia

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
SGN-CD19A (denintuzumab mafodotin)	Seattle Genetics <i>Bothell, WA</i>	ALL (see also lymphoma)	Phase I <a href="http://www.seattlegenetics.com">www.seattlegenetics.com</a>
SGN-CD33A (antibody-drug conjugate)	Seattle Genetics <i>Bothell, WA</i>	AML	Phase I <a href="http://www.seattlegenetics.com">www.seattlegenetics.com</a>
SL-401 (IL-3R inhibitor) ORPHAN DRUG	Stemline Therapeutics <i>New York, NY</i>	relapsed/refractory AML, AML in first complete remission (see also hematological, myeloproliferative)	Phase I/II <a href="http://www.stemline.com">www.stemline.com</a>
<b>Sprycel</b> <sup>®</sup> dasatinib	Bristol-Myers Squibb <i>Princeton, NJ</i>	refractory CML (pediatric)	Phase II <a href="http://www.bms.com">www.bms.com</a>
<b>Synribo</b> <sup>®</sup> omacetaxine mepesuccinate	Teva Pharmaceuticals <i>North Wales, PA</i>	AML in the elderly (see also myelodysplastic)	Phase II <a href="http://www.tevapharm.com">www.tevapharm.com</a>
<b>Tasigna</b> <sup>®</sup> nilotinib ORPHAN DRUG	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	CML (treatment free remission)	Phase III <a href="http://www.novartis.com">www.novartis.com</a>
TEN-010 (BET inhibitor)	Tensha Therapeutics <i>Cambridge, MA</i>	relapsed/refractory AML (see also myelodysplastic)	Phase I <a href="http://www.tenshatherapeutics.com">www.tenshatherapeutics.com</a>
TG-02 (CDK inhibitor)	Tragara Pharmaceuticals <i>Carlsbad, CA</i>	refractory AML, relapsed CLL (see also myeloma)	Phase I <a href="http://www.tragarapharma.com">www.tragarapharma.com</a>

## Leukemia

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
TG-1101 (anti-CD20 mAb) ORPHAN DRUG	TG Therapeutics <i>New York, NY</i>	CLL (combination therapy) (see also lymphoma)	Phase III <a href="http://www.tgtherapeutics.com">www.tgtherapeutics.com</a>
TH-302 (hypoxia-activated prodrug)	EMD Serono <i>Rockland, MA</i> Threshold Pharmaceuticals <i>South San Francisco, CA</i>	advanced leukemia (see also myeloma)	Phase I <a href="http://www.emdserono.com">www.emdserono.com</a> <a href="http://www.thresholdpharm.com">www.thresholdpharm.com</a>
tocodostat (aminopeptidase inhibitor) ORPHAN DRUG	CTI BioPharma <i>Seattle, WA</i> Fred Hutchinson Cancer Research Center <i>Seattle, WA</i> M.D. Anderson Cancer Center <i>Houston, TX</i>	AML	Phase I/II <a href="http://www.ctibiopharma.com">www.ctibiopharma.com</a>
volasertib (PLK-1 antagonist) ORPHAN DRUG	Boehringer Ingelheim Pharmaceuticals <i>Ridgefield, CT</i>	AML (Breakthrough Therapy)	Phase III <a href="http://www.boehringer-ingelheim.com">www.boehringer-ingelheim.com</a>
WT1 cancer vaccine	SELLAS Life Sciences <i>Zurich, Switzerland</i> Memorial Sloan Kettering Cancer Center <i>New York, NY</i>	AML (see also myeloma)	Phase I completed <a href="http://www.sellaslifesciences.com">www.sellaslifesciences.com</a>
<b>Zydelig®</b> idelalisib	Gilead Sciences <i>Foster City, CA</i>	CLL (1st-line), relapsed/refractory CLL (see also lymphoma)	Phase III <a href="http://www.gilead.com">www.gilead.com</a>

## Lymphoma

### Product Name

### Sponsor

### Indication

### Development Status

abemaciclib  
(CDK4/6 inhibitor)

Eli Lilly  
*Indianapolis, IN*

mantle cell lymphoma

Phase II  
[www.lilly.com](http://www.lilly.com)

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abexinostat  
(HDAC inhibitor)

Pharmacyclics  
*Sunnyvale, CA*

follicular lymphoma,  
mantle cell lymphoma

Phase II  
[www.pharmacyclics.com](http://www.pharmacyclics.com)

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ABT-199/GDC-0199  
(Bcl-2 inhibitor)

AbbVie  
*North Chicago, IL*  
Genentech  
*South San Francisco, CA*

diffuse large B-cell lymphoma (DLBCL),  
relapsed/refractory follicular lymphoma  
(combination therapy)  
(see also hematological, leukemia)

Phase II  
[www.abbvie.com](http://www.abbvie.com)  
[www.gene.com](http://www.gene.com)

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ACP-196  
(Btk inhibitor)

Acerta Pharma  
*San Carlos, CA*

mantle cell lymphoma  
(see also leukemia)

Phase II  
[www.acerta-pharma.com](http://www.acerta-pharma.com)

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DLBCL, follicular lymphoma,  
Waldenström macroglobulinemia

Phase I  
[www.acerta-pharma.com](http://www.acerta-pharma.com)

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ACP-319

Acerta Pharma  
*San Carlos, CA*

non-Hodgkin lymphoma (NHL) (combination therapy)  
(see also leukemia, myeloma)

Phase I/II  
[www.acerta-pharma.com](http://www.acerta-pharma.com)

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**Adcetris®**  
brentuximab vedotin  
ORPHAN DRUG

Seattle Genetics  
*Bothell, WA*

post-transplant Hodgkin lymphoma relapse  
prevention, relapsed CD30-positive cutaneous  
T-cell lymphoma (CTCL) , Hodgkin lymphoma (1st-line  
with chemotherapy), CD30-positive mature T-cell  
lymphoma (1st-line with chemotherapy) (FAST TRACK)

Phase III  
[www.seattlegenetics.com](http://www.seattlegenetics.com)

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relapsed/refractory CD30-positive NHL,  
Hodgkin lymphoma (age 60 and over),  
DLBCL (1st-line), Hodgkin lymphoma (2nd-line)

Phase II  
[www.seattlegenetics.com](http://www.seattlegenetics.com)

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## Lymphoma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
ADI-PEG 20 (PEG arginine deiminase)	Polaris Pharmaceuticals <i>San Diego, CA</i>	NHL (see also leukemia)	Phase II <a href="http://www.polarispharma.com">www.polarispharma.com</a>
AEB071 (Pkc inhibitor)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	CD79-mutant or ABC-subtype DLBCL (combination therapy)	Phase I/II <a href="http://www.novartis.com">www.novartis.com</a>
<b>Afinitor</b> <sup>®</sup> everolimus	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	DLBCL	Phase III <a href="http://www.novartis.com">www.novartis.com</a>
AFM 13 (CD30 antigen modulator) ORPHAN DRUG	Affimed Therapeutics <i>Heidelberg, Germany</i> Leukemia & Lymphoma Society <i>White Plains, NY</i>	Hodgkin lymphoma	Phase I <a href="http://www.affimed.com">www.affimed.com</a> <a href="http://www.lls.org">www.lls.org</a>
alisertib (aurora A kinase inhibitor)	Millennium Pharmaceuticals <i>Cambridge, MA</i>	relapsed/refractory peripheral T-cell lymphoma (PTCL)	Phase III <a href="http://www.millennium.com">www.millennium.com</a>
anti-CD22-CAR transduced T-cells	Opus Bio <i>Gaithersburg, MD</i> National Cancer Institute <i>Bethesda, MD</i>	NHL (see also leukemia)	Phase I <a href="http://www.opusbio.com">www.opusbio.com</a>
AR-12 (PI3K/Akt inhibitor)	Arno Therapeutics <i>Flemington, NJ</i>	lymphoma	Phase I <a href="http://www.arnothera.com">www.arnothera.com</a>
ARGX-110 (anti-CD70 antibody)	arGEN-X <i>Breda, Netherlands</i> Leukemia & Lymphoma Society <i>White Plains, NY</i>	Waldenström macroglobulinemia	Phase I <a href="http://www.argen-x.com">www.argen-x.com</a> <a href="http://www.lls.org">www.lls.org</a>

## Lymphoma

### Product Name

### Sponsor

### Indication

### Development Status

**Arzerra®**  
ofatumumab

GlaxoSmithKline  
*Research Triangle Park, NC*

relapsed DLBCL, relapsed/refractory follicular lymphoma  
(see also leukemia)

Phase III  
[www.gsk.com](http://www.gsk.com)

ATTCK20  
(viral-ACTR+anti-CD20)

Unum Therapeutics  
*Cambridge, MA*

NHL  
(see also leukemia)

Phase I  
[www.unumrx.com](http://www.unumrx.com)

bendamustine ready-to-dilute liquid formulation  
ORPHAN DRUG

Eagle Pharmaceuticals  
*Woodcliff Lake, NJ*

NHL  
(see also leukemia)

application submitted  
[www.eagleus.com](http://www.eagleus.com)

**BiovaxID®**  
dasiprotimut T  
(personalized cancer vaccine)  
ORPHAN DRUG

Biovest International  
*Minneapolis, MN*

follicular NHL (Fast Track),  
mantle cell lymphoma

Phase III  
[www.biovest.com](http://www.biovest.com)

**Blincyto™**  
blinatumomab  
ORPHAN DRUG

Amgen  
*Thousand Oaks, CA*

NHL

Phase II  
[www.amgen.com](http://www.amgen.com)

CBL0137  
(apoptosis stimulant)

Cleveland BioLabs  
*Buffalo, NY*

refractory lymphoma

Phase I  
[www.cbiolabs.com](http://www.cbiolabs.com)

CC-122  
(signal transduction pathway modulator)

Celgene  
*Summit, NJ*

DLBCL

Phase I  
[www.celgene.com](http://www.celgene.com)

cerdulatinib  
(dual Syk/JAK inhibitor)

Portola Pharmaceuticals  
*South San Francisco, CA*

B-cell NHL, small lymphocytic lymphoma  
(see also leukemia)

Phase I  
[www.portola.com](http://www.portola.com)

## Lymphoma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
CMD-003 (cell therapy)	Cell Medica <i>London, England</i>	Epstein-Barr virus-positive extranodal NK/T-cell lymphoma	Phase II <a href="http://www.cellmedica.co.uk">www.cellmedica.co.uk</a>
copanlisib (PI3K inhibitor)	Bayer HealthCare Pharmaceuticals <i>Whippany, NJ</i>	NHL	Phase II <a href="http://www.bayerpharma.com">www.bayerpharma.com</a>
CPI-0610 (BET inhibitor)	Constellation Pharmaceuticals <i>Cambridge, MA</i> Leukemia & Lymphoma Society <i>White Plains, NY</i>	lymphoma (see also leukemia, myelodysplastic, myeloma, myeloproliferative)	Phase I <a href="http://www.constellationpharma.com">www.constellationpharma.com</a> <a href="http://www.lls.org">www.lls.org</a>
CPI-613 (altered Energy metabolism-derived [AEMD] compound)	Cornerstone Pharmaceuticals <i>Cranbury, NJ</i>	advanced lymphoma	Phase I/II <a href="http://www.cornerstonepharma.com">www.cornerstonepharma.com</a>
CTL019 (chimeric antigen receptor T-cell therapy)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	DLBCL (see also leukemia)	Phase I <a href="http://www.novartis.com">www.novartis.com</a>
CUDC-427 (IAP inhibitor)	Curis <i>Lexington, MA</i>	late-stage lymphoma	Phase I <a href="http://www.curis.com">www.curis.com</a>
CUDC-907 (HDAC/pan-PI3K inhibitor)	Curis <i>Lexington, MA</i> Leukemia & Lymphoma Society <i>White Plains, NY</i>	relapsed/refractory lymphoma (see also myeloma)	Phase I <a href="http://www.curis.com">www.curis.com</a> <a href="http://www.lls.org">www.lls.org</a>
DCR-MYC (c-myc inhibitor)	Dicerna Pharmaceuticals <i>Watertown, MA</i>	NHL (see also myeloma)	Phase I <a href="http://www.dicerna.com">www.dicerna.com</a>

## Lymphoma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
Debio 1143 (IAP inhibitor)	Debiopharma <i>Lausanne, Switzerland</i>	lymphoma	Phase I <a href="http://www.debiopharm.com">www.debiopharm.com</a>
DI-Leu16-IL2 (CD20 antigen inhibitor)	ALOPEXX Oncology <i>Concord, MA</i>	NHL	Phase I/II <a href="http://www.alopexx.com">www.alopexx.com</a>
DS-3032 (MDM2 inhibitor)	Daiichi Sankyo <i>Parsippany, NJ</i>	lymphoma	Phase I <a href="http://www.dsi.com">www.dsi.com</a>
DS-3078 (mTOR inhibitor)	Daiichi Sankyo <i>Parsippany, NJ</i>	lymphoma	Phase I <a href="http://www.dsi.com">www.dsi.com</a>
DS-8273 (anti-DR5 antibody)	Daiichi Sankyo <i>Parsippany, NJ</i>	lymphoma	Phase I <a href="http://www.dsi.com">www.dsi.com</a>
duvelisib (PI3K-delta/gamma inhibitor) ORPHAN DRUG	AbbVie <i>North Chicago, IL</i> Infinity Pharmaceuticals <i>Cambridge, MA</i>	previously-treated follicular lymphoma (see also hematological, leukemia)	Phase III <a href="http://www.abbvie.com">www.abbvie.com</a> <a href="http://www.infi.com">www.infi.com</a>
		refractory indolent NHL	Phase II <a href="http://www.abbvie.com">www.abbvie.com</a> <a href="http://www.infi.com">www.infi.com</a>
		treatment naïve follicular lymphoma (combination therapy)	Phase I <a href="http://www.abbvie.com">www.abbvie.com</a> <a href="http://www.infi.com">www.infi.com</a>

## Lymphoma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
E7438/EPZ-6438 (EZH2 enzyme inhibitor)	Eisai <i>Woodcliff Lake, NJ</i> Epizyme <i>Cambridge, MA</i>	DLBCL	Phase I/II <a href="http://www.eisai.com">www.eisai.com</a> <a href="http://www.epizyme.com">www.epizyme.com</a>
<b>Folotyn®</b> pralatrexate injection ORPHAN DRUG	Spectrum Pharmaceuticals <i>Henderson, NV</i>	PTCL (1st-line)	Phase III <a href="http://www.spprix.com">www.spprix.com</a>
<b>Gazyva®</b> obinutuzumab	Genentech <i>South San Francisco, CA</i>	DLBCL (1st-line), refractory indolent NHL, follicular lymphoma (1st-line)	Phase III <a href="http://www.gene.com">www.gene.com</a>
GDC-0575 (ChK1 inhibitor)	Genentech <i>South San Francisco, CA</i>	lymphoma	Phase I <a href="http://www.gene.com">www.gene.com</a>
GSK2816126 (EZH2 enzyme inhibitor/histone modulator)	GlaxoSmithKline <i>Research Triangle Park, NC</i>	relapsed/refractory DLBCL, transformed follicular lymphoma	Phase I <a href="http://www.gsk.com">www.gsk.com</a>
<b>Imbruvica®</b> ibrutinib	Janssen Research & Development <i>Raritan, NJ</i> Pharmacyclics <i>Sunnyvale, CA</i>	relapsed/refractory mantle cell lymphoma, treatment naive mantle cell lymphoma, (combination therapy), relapsed/refractory indolent NHL (combination therapy), newly- diagnosed DLBCL (combination therapy), previously treated Waldenström macroglobulinemia (combination therapy) (see also leukemia)	Phase III <a href="http://www.janssenrnd.com">www.janssenrnd.com</a> <a href="http://www.pharmacyclics.com">www.pharmacyclics.com</a>
IMGN529 (CD37 protein inhibitor)	ImmunoGen <i>Waltham, MA</i>	NHL	Phase I <a href="http://www.immunogen.com">www.immunogen.com</a>

## Lymphoma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
IMMU-114 (anti-HLA-DR antibody)	Immunomedics <i>Morris Plains, NJ</i>	NHL (see also leukemia)	Phase I <a href="http://www.immunomedics.com">www.immunomedics.com</a>
IMO-8400 (TLR antagonist) ORPHAN DRUG	Idera Pharmaceuticals <i>Cambridge, MA</i>	DLBCL (MYD88 L265P oncogenic mutation), Waldenström macroglobulinemia	Phase I/II <a href="http://www.iderapharma.com">www.iderapharma.com</a>
<b>Imprime PGG<sup>®</sup></b> intravenous immunostimulant	Biothera <i>Eagan, MN</i> Dana-Farber Cancer Institute <i>Boston, MA</i>	advanced indolent NHL (see also leukemia)	Phase II <a href="http://www.biothera.com">www.biothera.com</a>
interleukin-12 gene therapy	OncoSec Medical <i>San Diego, CA</i>	CTCL	Phase II <a href="http://www.oncosec.com">www.oncosec.com</a>
<b>Istodax<sup>®</sup></b> romidepsin ORPHAN DRUG	Celgene <i>Summit, NJ</i>	PTCL (1st-line)	Phase III <a href="http://www.celgene.com">www.celgene.com</a>
JCAR015 (T lymphocyte immunotherapy)	Juno Therapeutics <i>Seattle, WA</i>	relapsed/refractory NHL (post autologous treatment) (see also leukemia)	Phase I <a href="http://www.junotherapeutics.com">www.junotherapeutics.com</a>
JNJ-26481585 (HDAC inhibitor)	Janssen Research & Development <i>Raritan, NJ</i>	CTCL	Phase II <a href="http://www.janssenrnd.com">www.janssenrnd.com</a>
JNJ-42756493 (FGFR inhibitor)	Janssen Research & Development <i>Raritan, NJ</i>	late-stage lymphoma	Phase I <a href="http://www.janssenrnd.com">www.janssenrnd.com</a>

## Lymphoma

### Product Name

### Sponsor

### Indication

### Development Status

KTE-C19 CAR  
(chimeric antigen receptor)  
ORPHAN DRUG

Kite Pharma  
*Santa Monica, CA*  
National Cancer Institute  
*Bethesda, MD*

refractory aggressive NHL

Phase I/II  
[www.kitepharma.com](http://www.kitepharma.com)

LY2780301  
(p70S6/AKT dual inhibitor)

Eli Lilly  
*Indianapolis, IN*

NHL

Phase I  
[www.lilly.com](http://www.lilly.com)

LY3039478  
(NOTCH inhibitor)

Eli Lilly  
*Indianapolis, IN*

lymphoma

Phase I  
[www.lilly.com](http://www.lilly.com)

**Marqibo®**  
vinCRIStine sulfate LIPOSOME  
injection

Spectrum Pharmaceuticals  
*Henderson, NV*

aggressive NHL (1st-line)  
(see also leukemia)

Phase III  
[www.sppirx.com](http://www.sppirx.com)

MEDI-551  
(anti-CD19 mAb)

MedImmune  
*Gaithersburg, MD*

DLBCL  
(see also hematological, leukemia)

Phase II  
[www.medimmune.com](http://www.medimmune.com)

MEDI-551+MEDI0680  
(anti-CD19 mAb+anti-CD20 mAb)

MedImmune  
*Gaithersburg, MD*

DLBCL  
(see also hematological, leukemia)

Phase I  
[www.medimmune.com](http://www.medimmune.com)

milatuzumab-doxorubicin  
(antibody-drug conjugate)

Immunomedics  
*Morris Plains, NJ*

NHL  
(see also leukemia)

Phase I/II  
[www.immunomedics.com](http://www.immunomedics.com)

mocetinostat  
(HDAC inhibitor)  
ORPHAN DRUG

Mirati Therapeutics  
*San Diego, CA*

DLBCL  
(see also myelodysplastic)

Phase II  
[www.mirati.com](http://www.mirati.com)

## Lymphoma

### Product Name

### Sponsor

### Indication

### Development Status

mogamulizumab  
(anti-CCR4 humanized antibody)  
ORPHAN DRUG

Kyowa Hakko Pharma  
*Princeton, NJ*

CTCL  
(see also leukemia)

Phase III  
[www.kyowa-kirin.com](http://www.kyowa-kirin.com)

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adult T-cell lymphoma

Phase II  
[www.kyowa-kirin.com](http://www.kyowa-kirin.com)

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MOR208  
(CD19 antigen inhibitor)  
ORPHAN DRUG

MorphoSys  
*Martinsried, Germany*  
Xencor  
*Monrovia, CA*

NHL  
(see also leukemia)

Phase II  
[www.morphosys.com](http://www.morphosys.com)  
[www.xencor.com](http://www.xencor.com)

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**Oncoquest™-L**  
personalized lymphoma vaccine

XEME Biopharma  
*Monmouth Junction, NJ*

follicular NHL

Phase II  
[www.xemebiopharma.com](http://www.xemebiopharma.com)

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**Opdivo™**  
nivolumab

Bristol-Myers Squibb  
*Princeton, NJ*

DLBCL, follicular NHL,  
Hodgkin lymphoma (BREAKTHROUGH THERAPY)  
(see also hematological, leukemia, myeloma)

Phase II  
[www.bms.com](http://www.bms.com)

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**Pixuvri®**  
pixantrone

CTI BioPharma  
*Seattle, WA*

DLBCL (combination therapy)

Phase III  
[www.ctibiopharma.com](http://www.ctibiopharma.com)

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PNT2258  
(bcl-2 oncogene inhibitor)

ProNAi Therapeutics  
*Plymouth, MI*

relapsed/refractory DLBCL,  
relapsed/refractory NHL

Phase II  
[www.pronai.com](http://www.pronai.com)

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polatuzumab vedotin  
(anti-CD79b antibody-drug conjugate)

Genentech  
*South San Francisco, CA*

DLBCL, NHL

Phase II  
[www.gene.com](http://www.gene.com)

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## Lymphoma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
REGN1979 (anti-CD20/anti-CD3 mAb)	Regeneron Pharmaceuticals <i>Tarrytown, NY</i>	NHL (see also leukemia)	Phase I <a href="http://www.regeneron.com">www.regeneron.com</a>
<b>Resimmune®</b> anti-CD3 immunotoxin	Angimmune <i>Rockville, MD</i>	CTCL	Phase II <a href="http://www.angimmune.com">www.angimmune.com</a>
<b>Revlimid®</b> lenalidomide	Celgene <i>Summit, NJ</i>	DLBCL (maintenance treatment), follicular lymphoma, relapsed/refractory indolent lymphoma (see also leukemia, myelodysplastic, myeloma)	Phase III <a href="http://www.celgene.com">www.celgene.com</a>
		DLBCL-ABC subtype (1st-line)	Phase II <a href="http://www.celgene.com">www.celgene.com</a>
rexlemestrocel-L (mesenchymal precursor cells) ORPHAN DRUG	Mesoblast <i>New York, NY</i>	NHL in patients undergoing transplantation with myeloablative conditioning (see also leukemia)	Phase III <a href="http://www.mesoblast.com">www.mesoblast.com</a>
RG7446 (PD-L1 mAb)	Genentech <i>South San Francisco, CA</i>	lymphoma (combination therapy)	Phase I <a href="http://www.gene.com">www.gene.com</a>
ricolinostat (ACY-1215) (HDAC inhibitor)	Acetylon Pharmaceuticals <i>Boston, MA</i>	lymphoma (see also myeloma)	Phase I/II <a href="http://www.acetylon.com">www.acetylon.com</a>
rituximab biosimilar (APB-798)	Amgen <i>Thousand Oaks, CA</i>	NHL	Phase III <a href="http://www.amgen.com">www.amgen.com</a>
rituximab biosimilar (BI 695500)	Boehringer Ingelheim Pharmaceuticals <i>Ridgefield, CT</i>	follicular lymphoma (1st-line)	Phase I <a href="http://www.boehringer-ingelheim.com">www.boehringer-ingelheim.com</a>

## Lymphoma

### Product Name

### Sponsor

### Indication

### Development Status

rituximab biosimilar  
(MK-8808)

Merck  
*Whitehouse Station, NJ*

follicular lymphoma (1st-line)

Phase I completed  
[www.merck.com](http://www.merck.com)

rituximab biosimilar  
(PF-05280586)

Pfizer  
*New York, NY*

follicular lymphoma (1st-line)

Phase III  
[www.pfizer.com](http://www.pfizer.com)

RRx-001  
(free radical stimulant)

EpicentRx  
*Mountain View, CA*

late-stage lymphoma

Phase I  
[www.epicentrx.com](http://www.epicentrx.com)

SD101  
(toll-like receptor 9 agonist)

Dynavax  
*Berkeley, CA*

low-grade recurrent B-cell lymphoma

Phase I/II  
[www.dynavax.com](http://www.dynavax.com)

selinexor  
(exportin-1 protein inhibitor/nuclear  
nuclear inhibitor)  
ORPHAN DRUG

Karyopharm Therapeutics  
*Newton, MA*

DLBCL  
(see also leukemia, myeloma)

Phase II  
[www.karyopharm.com](http://www.karyopharm.com)

SGN-CD19A  
(denintuzumab mafodotin)

Seattle Genetics  
*Bothell, WA*

NHL  
(see also leukemia)

Phase I  
[www.seattlegenetics.com](http://www.seattlegenetics.com)

SGN-CD70A  
(antibody-drug conjugate)

Seattle Genetics  
*Bothell, WA*

NHL

Phase I  
[www.seattlegenetics.com](http://www.seattlegenetics.com)

SGX301  
(photosensitizer)  
ORPHAN DRUG

Soligenix  
*Princeton, NJ*

CTCL (1st-line)  
(Fast Track)

Phase II  
[www.soligenix.com](http://www.soligenix.com)

## Lymphoma

### Product Name

### Sponsor

### Indication

### Development Status

SHAPE  
(HDAC inhibitor)  
ORPHAN DRUG

TetraLogic Pharmaceuticals  
*Malvern, PA*

CTCL

Phase II  
[www.tetralogicpharma.com](http://www.tetralogicpharma.com)

SNDX-275  
(HDAC inhibitor)

Syndax Pharmaceuticals  
*Waltham, MA*

relapsed/refractory Hodgkin lymphoma

Phase II  
[www.syndax.com](http://www.syndax.com)

TG-1101  
(anti-CD20 mAb)  
ORPHAN DRUG

TG Therapeutics  
*New York, NY*

mantle cell lymphoma (combination therapy)  
(see also leukemia)

Phase II  
[www.tgtherapeutics.com](http://www.tgtherapeutics.com)

**Treanda®**  
bendamustine  
ORPHAN DRUG

Teva Pharmaceuticals  
*North Wales, PA*

advanced indolent NHL (1st-line)

application submitted  
[www.tevapharm.com](http://www.tevapharm.com)

relapsed/refractory mantle cell lymphoma  
(combination therapy)

Phase II  
[www.tevapharm.com](http://www.tevapharm.com)

TSR-011  
(ALK/TRK inhibitor)

TESARO  
*Waltham, MA*

lymphoma

Phase I/II  
[www.tesaro.com](http://www.tesaro.com)

veltuzumab  
(humanized anti-CD20 mAb)

Immunomedics  
*Morris Plains, NJ*

NHL (combination therapy)

Phase II  
[www.immunomedics.com](http://www.immunomedics.com)

VS-5584  
(PI3K/mTORC inhibitor)

Verastem  
*Needham, MA*

late-stage lymphoma

Phase I  
[www.verastem.com](http://www.verastem.com)

## Lymphoma

### Product Name

### Sponsor

### Indication

### Development Status

Zydelig®  
idelalisib

Gilead Sciences  
Foster City, CA

indolent NHL  
(see also leukemia)

Phase III  
[www.gilead.com](http://www.gilead.com)

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indolent NHL (1st-line)

Phase II  
[www.gilead.com](http://www.gilead.com)

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## Myelodysplastic Syndromes

### Product Name

### Sponsor

### Indication

### Development Status

ASTX727  
(DNA methylation inhibitor/nucleoside  
deaminase inhibitor fixed-dose  
combination)

Astex Pharmaceuticals  
Dublin, CA

myelodysplastic syndromes

Phase I/II  
[www.astx.com](http://www.astx.com)

BI 836858

Boehringer Ingelheim Pharmaceuticals  
Ridgefield, CT

myelodysplastic syndromes  
(see also leukemia)

Phase II  
[www.boehringer-ingelheim.com](http://www.boehringer-ingelheim.com)

birinapant  
(apoptosis stimulator)

TetraLogic Pharmaceuticals  
Malvern, PA

myelodysplastic syndromes

Phase II  
[www.tetralogicpharma.com](http://www.tetralogicpharma.com)

BP-100-1.01  
(liposomal Grb-2)

Bio-Path Holdings  
Houston, TX

myelodysplastic syndromes  
(see also leukemia)

Phase I  
[www.biopathholdings.com](http://www.biopathholdings.com)

BVD-523  
(ERK 1/2 kinase inhibitor)

BioMed Valley Discoveries  
Kansas City, MO

myelodysplastic syndromes  
(see also leukemia)

Phase I/II  
[www.biomed-valley.com](http://www.biomed-valley.com)

CC-486  
(azacitidine)

Celgene  
Summit, NJ

myelodysplastic syndromes (lower-risk) (FAST TRACK)  
(see also leukemia)

Phase III  
[www.celgene.com](http://www.celgene.com)

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## Myelodysplastic Syndromes

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
CPI-0610 (BET protein inhibitor)	Constellation Pharmaceuticals <i>Cambridge, MA</i> Leukemia & Lymphoma Society <i>White Plains, NY</i>	myelodysplastic syndromes (see also leukemia, lymphoma, myeloma, myeloproliferative)	Phase I <a href="http://www.constellationpharma.com">www.constellationpharma.com</a> <a href="http://www.lls.org">www.lls.org</a>
galunisertib (TGF-beta inhibitor)	Eli Lilly <i>Indianapolis, IN</i>	myelodysplastic syndromes	Phase II/III <a href="http://www.lilly.com">www.lilly.com</a>
KB004 (EphA3 receptor antagonist)	KaloBios Pharmaceuticals <i>South San Francisco, CA</i>	EphA3-positive myelodysplastic syndromes (see also leukemia, myeloproliferative)	Phase II <a href="http://www.kalobios.com">www.kalobios.com</a>
LGH447 (proto oncogene protein c pim-1 inhibitor)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	myelodysplastic syndromes (see also leukemia, myeloma)	Phase I <a href="http://www.novartis.com">www.novartis.com</a>
luspatercept (ACE-536) (TGF-β protein super family inhibitor) ORPHAN DRUG	Acceleron Pharma <i>Cambridge, MA</i> Celgene <i>Summit, NJ</i>	myelodysplastic syndromes	Phase II <a href="http://www.acelleronpharma.com">www.acelleronpharma.com</a> <a href="http://www.celgene.com">www.celgene.com</a>
MEDI4736 (anti-PD-L1 mAb)	MedImmune <i>Gaithersburg, MD</i>	myelodysplastic syndromes	Phase I <a href="http://www.medimmune.com">www.medimmune.com</a>
mocetinostat (HDAC inhibitor) ORPHAN DRUG	Mirati Therapeutics <i>San Diego, CA</i>	myelodysplastic syndromes (see also lymphoma)	Phase II <a href="http://www.mirati.com">www.mirati.com</a>
OPN-305 (toll-like receptor 2 antagonist)	Opsona Therapeutics <i>Dublin, Ireland</i>	myelodysplastic syndromes	Phase I/II <a href="http://www.opsona.com">www.opsona.com</a>

## Myelodysplastic Syndromes

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
OXi4503 (vascular disrupting agent)	OXIGENE <i>South San Francisco, CA</i>	myelodysplastic syndromes (see also leukemia)	Phase I <a href="http://www.oxigene.com">www.oxigene.com</a>
pracinostat (HDAC inhibitor)	MEI Pharma <i>San Diego, CA</i>	myelodysplastic syndromes (1st-line), refractory myelodysplastic syndromes (see also leukemia)	Phase II <a href="http://www.meipharma.com">www.meipharma.com</a>
<b>Promacta</b> <sup>®</sup> eltrombopag	GlaxoSmithKline <i>Research Triangle Park, NC</i>	myelodysplastic syndromes (see also leukemia)	Phase II <a href="http://www.gsk.com">www.gsk.com</a>
<b>Revlimid</b> <sup>®</sup> lenalidomide ORPHAN DRUG	Celgene <i>Summit, NJ</i>	myelodysplastic syndromes (non-deletion 5q) (see also leukemia, lymphoma, myeloma)	Phase III <a href="http://www.celgene.com">www.celgene.com</a>
rigosertib (PI3K/Plk1 inhibitor) ORPHAN DRUG	Onconova Therapeutics <i>Newtown, PA</i>	high-risk and low-risk myelodysplastic syndromes	Phase III <a href="http://www.onconova.com">www.onconova.com</a>
sapacitabine (DNA-directed DNA polymerase inhibitor) ORPHAN DRUG	Cyclacel Pharmaceuticals <i>Berkeley Heights, NJ</i>	myelodysplastic syndromes in the elderly (see also leukemia)	Phase II <a href="http://www.cyclacel.com">www.cyclacel.com</a>
SGI110 (DNMT1 inhibitor)	Astex Pharmaceuticals <i>Dublin, CA</i>	myelodysplastic syndromes (see also leukemia)	Phase II <a href="http://www.astx.com">www.astx.com</a>

## Myelodysplastic Syndromes

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
sotatercept (ACE-011) (activin inhibitor)	Acceleron Pharma <i>Cambridge, MA</i> Celgene <i>Summit, NJ</i>	myelodysplastic syndromes	Phase II <a href="http://www.acceleronpharma.com">www.acceleronpharma.com</a> <a href="http://www.celgene.com">www.celgene.com</a>
<b>Synribo®</b> omacetaxine mepesuccinate ORPHAN DRUG	Teva Pharmaceuticals <i>North Wales, PA</i>	myelodysplastic syndromes (see also leukemia)	Phase II <a href="http://www.tevapharm.com">www.tevapharm.com</a>
TEN-010 (BET inhibitor)	Tensha Therapeutics <i>Cambridge, MA</i>	refractory myelodysplastic syndromes (see also leukemia)	Phase I <a href="http://www.tenshatherapeutics.com">www.tenshatherapeutics.com</a>

## Myeloma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
ACP-319	Acerta Pharma <i>San Carlos, CA</i>	multiple myeloma (combination therapy) (see also leukemia, lymphoma)	Phase I/II <a href="http://www.acerta-pharma.com">www.acerta-pharma.com</a>
afuresertib (AKT inhibitor)	GlaxoSmithKline <i>Research Triangle Park, NC</i>	multiple myeloma	Phase I <a href="http://www.gsk.com">www.gsk.com</a>
ALT-803 (IL-15 superagonist complex)	Altor BioScience <i>Miramar, FL</i>	multiple myeloma (see also hematological)	Phase I/II <a href="http://www.altorbioscience.com">www.altorbioscience.com</a>
<b>Aplidin®</b> plitidepsin ORPHAN DRUG	PharmaMar <i>Madrid, Spain</i>	multiple myeloma	Phase III <a href="http://www.pharmamar.com">www.pharmamar.com</a>

## Myeloma

### Product Name

### Sponsor

### Indication

### Development Status

AT7519  
(CDK inhibitor)

Astex Pharmaceuticals  
*Dublin, CA*  
Novartis Pharmaceuticals  
*East Hanover, NJ*

multiple myeloma

Phase II  
[www.astx.com](http://www.astx.com)  
[www.novartis.com](http://www.novartis.com)

BYL719  
(PI3K-alpha inhibitor)

Novartis Pharmaceuticals  
*East Hanover, NJ*

relapsed/refractory multiple myeloma  
(combination therapy)

Phase I/II  
[www.novartis.com](http://www.novartis.com)

CB-5083  
(CDC48/p97 inhibitor)

Cleave Biosciences  
*Burlingame, CA*

multiple myeloma

Phase I  
[www.cleavebio.com](http://www.cleavebio.com)

CPI-0610  
(BET protein inhibitor)

Constellation Pharmaceuticals  
*Cambridge, MA*  
Leukemia & Lymphoma Society  
*White Plains, NY*

multiple myeloma  
(see also leukemia, lymphoma, myelodysplastic,  
myeloproliferative)

Phase I  
[www.constellationpharma.com](http://www.constellationpharma.com)  
[www.lls.org](http://www.lls.org)

CUDC-907  
(HDAC/pan-PI3K inhibitor)

Curis  
*Lexington, MA*  
Leukemia & Lymphoma Society  
*White Plains, NY*

multiple myeloma  
(see also lymphoma)

Phase I  
[www.curis.com](http://www.curis.com)  
[www.lls.org](http://www.lls.org)

daratumumab  
(IgG1K mAb)

Janssen Research & Development  
*Raritan, NJ*

relapsed/refractory multiple myeloma (1st-line)  
(combination therapy)

Phase III  
[www.janssenrnd.com](http://www.janssenrnd.com)

multiple myeloma (2nd-line) (FAST TRACK)

Phase II  
[www.janssenrnd.com](http://www.janssenrnd.com)

DCR-MYC  
(c-myc inhibitor)

Dicerna Pharmaceuticals  
*Watertown, MA*

multiple myeloma  
(see also lymphoma)

Phase I  
[www.dicerna.com](http://www.dicerna.com)

## Myeloma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
DKN-01 (DKK1 protein inhibitor)	HealthCare Pharmaceuticals <i>Cambridge, MA</i>	multiple myeloma	Phase I/II <a href="http://www.healthcarepharmaceuticals.com">www.healthcarepharmaceuticals.com</a>
elotuzumab	AbbVie <i>North Chicago, IL</i> Bristol-Myers Squibb <i>Princeton, NJ</i>	multiple myeloma (1st-line) (combination therapy), relapsed/refractory multiple myeloma (combination therapy) (BREAKTHROUGH THERAPY)	Phase III <a href="http://www.abbvie.com">www.abbvie.com</a> <a href="http://www.bms.com">www.bms.com</a>
		multiple myeloma (2nd-line)	Phase II <a href="http://www.abbvie.com">www.abbvie.com</a> <a href="http://www.bms.com">www.bms.com</a>
filanesib (KSP inhibitor)	Array BioPharma <i>Boulder, CO</i>	multiple myeloma	Phase II <a href="http://www.arraybiopharma.com">www.arraybiopharma.com</a>
GSK2110183 (AKT inhibitor)	GlaxoSmithKline <i>Research Triangle Park, NC</i>	multiple myeloma	Phase I <a href="http://www.gsk.com">www.gsk.com</a>
GSK2857916 (antibody-drug conjugate)	GlaxoSmithKline <i>Research Triangle Park, NC</i>	relapsed/refractory multiple myeloma	Phase I <a href="http://www.gsk.com">www.gsk.com</a>
indatuximab ravtansine (BT-062) ORPHAN DRUG	Biotest <i>Dreieich, Germany</i> ImmunoGen <i>Waltham, MA</i>	multiple myeloma	Phase I/II <a href="http://www.biotest.de">www.biotest.de</a> <a href="http://www.immunogen.com">www.immunogen.com</a>
ixazomib (proteasome inhibitor) ORPHAN DRUG	Millennium Pharmaceuticals <i>Cambridge, MA</i>	relapsed/refractory multiple myeloma, previously untreated multiple myeloma, maintenance therapy in myeloma following autologous stem cell transplant	Phase III <a href="http://www.millennium.com">www.millennium.com</a>

## Myeloma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
<b>Keytruda®</b> pembrolizumab	Merck <i>Whitehouse Station, NJ</i>	multiple myeloma (combination therapy) (see also hematological)	Phase I <a href="http://www.merck.com">www.merck.com</a>
<b>Kyprolis®</b> carfilzomib ORPHAN DRUG	Onyx Pharmaceuticals <i>South San Francisco, CA</i>	multiple myeloma (1st-line), relapsed multiple myeloma (combination therapy)	Phase III <a href="http://www.onyx.com">www.onyx.com</a>
LGH447 (proto oncogene protein c pim-1 inhibitor)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	multiple myeloma (combination therapy) (see also leukemia, myelodysplastic)	Phase I/II <a href="http://www.novartis.com">www.novartis.com</a>
lirilumab+elotuzumab	Bristol-Myers Squibb <i>Princeton, NJ</i>	multiple myeloma	Phase I <a href="http://www.bms.com">www.bms.com</a>
lirilumab+ <b>Opdivo™</b> nivolumab	Bristol-Myers Squibb <i>Princeton, NJ</i>	multiple myeloma	Phase I <a href="http://www.bms.com">www.bms.com</a>
marizomib intravenous (proteasome inhibitor) ORPHAN DRUG	Triphase Accelerator <i>San Diego, CA</i>	relapsed/refractory multiple myeloma	Phase II <a href="http://www.triphaseco.com">www.triphaseco.com</a>
melphalan intravenous (Captisol-Enabled™ melphalan) ORPHAN DRUG	Spectrum Pharmaceuticals <i>Henderson, NV</i>	multiple myeloma	application submitted <a href="http://www.spprix.com">www.spprix.com</a>
MOR202 (anti-CD38 antibody)	Celgene <i>Summit, NJ</i> MorphoSys <i>Martinsried, Germany</i>	multiple myeloma	Phase I <a href="http://www.celgene.com">www.celgene.com</a>

## Myeloma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
NY-ESO-1/LAGE-1-specific T-cells	Adaptimmune <i>Oxon, United Kingdom</i>	multiple myeloma	Phase I/II <a href="http://www.adaptimmune.com">www.adaptimmune.com</a>
oprozomib (proteasome inhibitor) ORPHAN DRUG	Onyx Pharmaceuticals <i>South San Francisco, CA</i>	multiple myeloma (combination therapy) (see also hematological)	Phase I/II <a href="http://www.onyx.com">www.onyx.com</a>
PVX-410 (therapeutic vaccine) ORPHAN DRUG	OncoPep <i>North Andover, MA</i> Leukemia & Lymphoma Society <i>White Plains, NY</i>	smoldering multiple myeloma	Phase I/II <a href="http://www.oncopep.com">www.oncopep.com</a> <a href="http://www.lls.org">www.lls.org</a>
<b>Revlimid®</b> lenalidomide ORPHAN DRUG	Celgene <i>Summit, NJ</i>	multiple myeloma (newly diagnosed) (see also leukemia, lymphoma, myelodysplastic)	application submitted <a href="http://www.celgene.com">www.celgene.com</a>
		multiple myeloma (maintenance therapy)	Phase III <a href="http://www.celgene.com">www.celgene.com</a>
ricolinostat (ACY-1215) (HDAC inhibitor)	Acetylon Pharmaceuticals <i>Boston, MA</i> Leukemia & Lymphoma Society <i>White Plains, NY</i>	relapsed/refractory multiple myeloma (see also lymphoma)	Phase II <a href="http://www.acetylon.com">www.acetylon.com</a> <a href="http://www.lls.org">www.lls.org</a>
SAR650984 (anti-CD38 naked mAb)	Sanofi US <i>Bridgewater, NJ</i>	multiple myeloma	Phase II <a href="http://www.sanofi.com">www.sanofi.com</a>

## Myeloma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
selinexor (exportin-1 protein inhibitor/nuclear nuclear inhibitor) ORPHAN DRUG	Karyopharm Therapeutics <i>Newton, MA</i>	multiple myeloma (see also leukemia, lymphoma)	Phase II <a href="http://www.karyopharm.com">www.karyopharm.com</a>
<b>Sylvant</b> <sup>®</sup> siltuximab	Janssen Research & Development <i>Raritan, NJ</i>	smoldering multiple myeloma	Phase II <a href="http://www.janssenrnd.com">www.janssenrnd.com</a>
TAS-120 (FGF/FGFR inhibitor)	Taiho Oncology <i>Princeton, NJ</i>	multiple myeloma	Phase I/II <a href="http://www.taihooncology.com">www.taihooncology.com</a>
TG-02 (CDK inhibitor)	Tragara Pharmaceuticals <i>Carlsbad, CA</i>	multiple myeloma (see also leukemia)	Phase I <a href="http://www.tragarapharma.com">www.tragarapharma.com</a>
TH-302 (hypoxia-activated prodrug)	EMD Serono <i>Rockland, MA</i> Threshold Pharmaceuticals <i>South San Francisco, CA</i>	multiple myeloma (see also leukemia)	Phase I/II <a href="http://www.emdserono.com">www.emdserono.com</a> <a href="http://www.thresholdpharm.com">www.thresholdpharm.com</a>
urelumab+elotuzumab	Bristol-Myers Squibb <i>Princeton, NJ</i>	multiple myeloma	Phase I <a href="http://www.bms.com">www.bms.com</a>
WT1 cancer vaccine	SELLAS Life Sciences <i>Zurich, Switzerland</i> Memorial Sloan Kettering Cancer Center <i>New York, NY</i>	multiple myeloma (see also leukemia)	Phase I completed <a href="http://www.sellaslifesciences.com">www.sellaslifesciences.com</a>

## Myeloma

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
<b>Zelboraf®</b> vemurafenib	Genentech <i>South San Francisco, CA</i>	multiple myeloma (BRAF V600 mutation-positive)	Phase II <a href="http://www.gene.com">www.gene.com</a>
<b>Zolinza®</b> vorinostat ORPHAN DRUG	Merck <i>Whitehouse Station, NJ</i>	multiple myeloma (combination therapy)	Phase III <a href="http://www.merck.com">www.merck.com</a>

## Myeloproliferative Neoplasms

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
CPI-0610 (BET protein inhibitor)	Constellation Pharmaceuticals <i>Cambridge, MA</i>	myeloproliferative neoplasms (see also leukemia, lymphoma, myelodysplastic, myeloma)	Phase I <a href="http://www.constellationpharma.com">www.constellationpharma.com</a>
imetelstat (telomerase inhibitor)	Geron <i>Menlo Park, CA</i> Janssen Research & Development <i>Raritan, NJ</i>	myelofibrosis (1st-line)	Phase II <a href="http://www.geron.com">www.geron.com</a> <a href="http://www.janssenrnd.com">www.janssenrnd.com</a>
KB004 (EphA3 receptor antagonist)	KaloBios Pharmaceuticals <i>South San Francisco, CA</i>	EphA3-positive myelofibrosis (see also leukemia, myelodysplastic)	Phase II <a href="http://www.kalobios.com">www.kalobios.com</a>
LCL161 (IAP inhibitor)	Novartis Pharmaceuticals <i>East Hanover, NJ</i> M.D. Anderson Cancer Center <i>Houston, TX</i>	myelofibrosis	Phase II <a href="http://www.novartis.com">www.novartis.com</a>
LDE225 (Smo antagonist)	Novartis Pharmaceuticals <i>East Hanover, NJ</i>	myelofibrosis (combination therapy) (see also hematological, leukemia)	Phase I/II <a href="http://www.novartis.com">www.novartis.com</a>

## Myeloproliferative Neoplasms

<u>Product Name</u>	<u>Sponsor</u>	<u>Indication</u>	<u>Development Status</u>
momelotinib (JAK inhibitor) ORPHAN DRUG	Gilead Sciences <i>Foster City, CA</i>	myelofibrosis	Phase III <a href="http://www.gilead.com">www.gilead.com</a>
NS-018 (JAK2 inhibitor)	NS Pharma <i>Paramus, NJ</i>	myelofibrosis	Phase I/II <a href="http://www.nippon-shinyaku.co.jp">www.nippon-shinyaku.co.jp</a>
pacritinib (JAK2/FLT3 dual inhibitor) ORPHAN DRUG	Baxter International <i>Deerfield, IL</i> CTI BioPharma <i>Seattle, WA</i>	myelofibrosis (FAST TRACK)	Phase III <a href="http://www.baxter.com">www.baxter.com</a> <a href="http://www.ctiopharma.com">www.ctiopharma.com</a>
PRM-151 (rhPTX-2 for injection) ORPHAN DRUG	Promedior <i>Lexington, MA</i>	myelofibrosis (FAST TRACK)	Phase II <a href="http://www.promedior.com">www.promedior.com</a>
SL-401 (IL-3R inhibitor)	Stemline Therapeutics <i>New York, NY</i>	advanced high-risk myeloproliferative neoplasms (see also hematological, leukemia)	Phase I/II <a href="http://www.stemline.com">www.stemline.com</a>

## Definitions

**Application Submitted**—An application for marketing has been submitted by the company to the U.S. Food and Drug Administration (FDA).

**Breakthrough Therapy**—Upon request by a sponsor, the FDA can grant this designation to expedite the development and review of a drug or biologic intended, alone or in combination with one or more other drugs, to treat a serious or life threatening disease or condition and preliminary clinical evidence indicates that it may demonstrate substantial improvement over existing therapies on one or more clinically-significant endpoints, such as substantial treatment effects observed early in clinical development. If a drug or biologic is designated as a breakthrough therapy, the FDA will expedite the development and review. With this designation, all Fast Track features convey to the medicine.

**Fast Track**—Upon request by a sponsor, the FDA can grant this designation to facilitate the development and expedite the review of a drug or biologic to treat a serious condition and fill an unmet medical need. When considering a biopharmaceutical company's request for Fast Track designation for an investigational drug or biologic, the FDA evaluates whether it will affect factors such as survival, day-to-day functioning, or the likelihood that the disease, if left untreated, will progress from a less severe

condition to a more serious one, and whether a condition can be adequately addressed by available therapy. With Fast Track designation, early and frequent communication between the FDA and the biopharmaceutical company is encouraged throughout the entire drug development and review process to help to quickly resolve any questions or issues that arise, potentially leading to an earlier approval and access by patients.

**Orphan Designation**—Upon request by a sponsor, the FDA can grant special status (“orphan status”) to a drug or biologic to treat a rare disease or condition. In order to receive an orphan designation, a qualifying drug or biologic must be intended for the treatment, diagnosis, or prevention of a rare disease or condition that affects fewer than 200,000 people in the United States, or that affects more than 200,000 persons but is not expected to recover the costs of its development and marketing.

**Phase I**—Researchers test the investigational drug or biologic in a small group of people, usually between 20 and 100 healthy adult volunteers, to evaluate its initial safety and tolerability profile, determine a safe dosage range, and identify potential side effects.

**Phase II**—The investigational drug or biologic is given to volunteer patients, usually between 100 and 500, to determine whether it is effective, identify an optimal dose, and to further evaluate its short-term safety.

**Phase III**—The investigational drug or biologic is given to a larger, more diverse patient population, often involving between 1,000 and 5,000 patients (but sometimes many more), to generate statistically significant evidence to confirm its safety and effectiveness. Phase III studies are the longest studies and usually take place in multiple sites around the world.

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The content of this report has been obtained through public, government and industry sources, and the Adis “R&D Insight” database based on the latest information. **Report current as of February 24, 2015.** The medicines in this listing include medicines being developed by U.S.-based companies conducting trials in the United States and abroad, PhRMA-member companies conducting trials in the United States and abroad, and foreign companies conducting clinical trials in the United States. The information may not be comprehensive. For more specific information about a particular product, contact the individual company directly or go to [www.clinicaltrials.gov](http://www.clinicaltrials.gov). The entire series of Medicines in Development is available on PhRMA's website.