

Appendix 2 (as supplied by author)

Table 1. Pediatric relevancy of oncology drugs with adult indications only in Health Canada monographs

Active ingredient(s)	Brand name	Year of approval	Biologic	Adult indication(s)	Oncology molecular target
Afatinib Dimaleate	GIOTRIF	2013	No	Epidermal Growth Factor Receptor tyrosine kinase inhibitor native patients with metastatic adenocarcinoma of the lung with activating EGFR mutations; Locally advanced or metastatic non-small cell lung cancer of squamous histology progressing after platinum-based chemotherapy	CTLA-4
Aflibercept	ZALTRAP	2014	Yes	Combination therapy for metastatic colorectal cancer	Vascular Endothelial Growth Factor
ALECTINIB HYDROCHLORIDE	ALECENSARO	2016	No	For the first-line treatment of patients with anaplastic lymphoma kinase (ALK)-positive, locally advanced (not amenable to curative therapy) or metastatic non-small cell lung cancer (NSCLC); As monotherapy for the treatment of patients with anaplastic lymphoma kinase (ALK)-positive, locally advanced (not amenable to curative therapy) or metastatic non-small cell lung cancer (NSCLC) who have progressed on or are intolerant to crizotinib.	Targeted alpha-particle therapy (TAT)
AXITINIB	INLYTA	2012	No	Metastatic renal cell carcinoma of clear cell histology after failure of prior systematic therapy with either a cytokine or the VEGFR-TKI, sunitinib	cyclic dependent kinases 4 and 6 (CDK 4/6) inhibitor
AZACITIDINE	VIDAZA	2009	No	Treatment for those who are not eligible for hematopoietic stem cell transplantation with Myelodysplastic Syndrome or Acute Myeloid Leukemia	CD38 inhibitor
BENDAMUSTINE HYDROCHLORIDE	TREANDA	2012	No	Relapsed indolent B-cell non-Hodgkin lymphoma (NHL) who did not respond to or progressed during or shortly following treatment with a rituximab regimen; Symptomatic chronic lymphocytic leukemia (CLL) who have received no prior treatment.	TP53 (tumor protein) dependant activation
BOSUTINIB	BOSULIF	2014	No	Newly-diagnosed chronic phase (CP) Philadelphia chromosome positive chronic myelogenous leukemia; Chronic, accelerated, or blast phase Philadelphia chromosome-positive (Ph+) chronic myelogenous leukemia (CML)	mTOR inhibitor
BRENTUXIMAB VEDOTIN	ADCETRIS	2013	Yes	Hodgkin Lymphoma; Systemic Anaplastic Large Cell Lymphoma (sALCL), CD30-Expressing Peripheral T-cell lymphoma-Not Otherwise Specified (PTCL-NOS) or CD30-Expressing Angioimmunoblastic T-cell lymphoma (AITL); Systemic Anaplastic Large Cell Lymphoma; Primary Cutaneous Anaplastic Large Cell Lymphoma (pcALCL) or CD30-Expressing Mycosis Fungoides (MF)	anti-CD30 monoclonal antibody
CABAZITAXEL	JEVTANA	2011	No	Treatment of patients with castration resistant metastatic prostate cancer previously treated with a docetaxel containing regimen	PD-1/PD-L1 blocking

CARFILZOMIB	KYPROLIS	2016	No	Relapsed multiple myeloma for those who have received 1 to 3 prior lines of therapy	20S and 26S Proteasome inhibitor
CELGENE INC	POMALYST	2014	No	In combination with dexamethasone (dex) and bortezomib is indicated in the treatment of adult patients with multiple myeloma (MM) who have received at least one prior treatment regimen that included lenalidomide; In combination with dexamethasone is indicated for patients with multiple myeloma for whom both bortezomib and lenalidomide have failed and who have received at least two prior treatment regimens and have demonstrated disease progression on the last regimen.	BCR-ABL kinase inhibitor
CERITINIB	ZYKADIA	2015	Yes	Treatment of adult patients with anaplastic lymphoma kinase (ALK)-positive locally advanced (not amenable to curative therapy) or metastatic nonsmall cell lung cancer (NSCLC) who have progressed on or who were intolerant to crizotinib, with conditions, pending the results of studies to verify its clinical benefit; first line therapy for patients with ALK-positive locally advanced or metastatic NSCLC without conditions	ALK inhibitor
COBIMETINIB FUMARATE	COTELLIC	2016	No	For treatment of patients with unresectable or metastatic melanoma with a BRAF V600 mutation	microtubule-targeting agent
CRIZOTINIB	XALKORI	2012	No	Anaplastic lymphoma kinase-positive locally advanced or metastatic non-small cell lung cancer; Monotherapy for use in patients with ROS1-positive locally advanced or metastatic NSCLC	ALK phosphorylation and ALK-mediated activation
Dabrafenib mesylate	TAFINLAR	2013	No	Unresectable or metastatic melanoma; Adjuvant treatment of melanoma; Metastatic Non-Small Cell Lung Cancer	Bcr-Abl kinase inhibitor
DARATUMUMAB	DARZALEX	2016	Yes	Newly diagnosed multiple myeloma when ineligible for autologous stem cell transplant; Multiple myeloma in those who received at least one prior therapy; Multiple myeloma in those who received at least three prior lines of therapy including a proteasome inhibitor and an immunomodulatory agent, or who are refractory to both a PI and an IMiD	Epidermal Growth Factor Receptor
DASATINIB (DASATINIB MONOHYDRATE)	SPRYCEL	2007	No	Newly diagnosed Philadelphia chromosome chronic myeloid leukemia in chronic phase; Ph+ chronic, accelerated, or blast phase chronic myeloid leukemia with resistance or intolerance to prior therapy including imatinib; Ph+ chronic, accelerated, or blast phase chronic myeloid leukemia with resistance or intolerance to prior therapy including imatinib	BCL-2 inhibitor
ELOTUZUMAB	EMPLICITI	2016	Yes	Treatment of patients with multiple myeloma who have received one to three prior therapies	Vascular Endothelial Growth Factor
ERIBULIN MESYLATE	HALAVEN	2011	No	Metastatic breast cancer who have previously used at least two chemotherapeutic regimens for the treatment of metastatic disease; For treatment of unresectable advanced or metastatic liposarcoma subtype of soft tissue sarcoma	phosphoinositide 3-kinase inhibitor

Ibrutinib	IMBRUVICA	2014	No	Patients with previously untreated active chronic lymphocytic leukemia, including those with 17p deletion; In combination with ozenituzamab for the treatment of patients with previously untreated active CLL, including those with 17p deletion; For those with CLL who have received at least one prior therapy, including those with 17p deletion; In combination with bendamustine and rituximab for those with CLL who have received at least one prior therapy; Patients with relapsed or refractory mantle cell lymphoma; Patients with marginal zone lymphoma who require systemic therapy and have received at least one prior anti-CD20-based therapy; Treatment of patients with Waldenstrom's macroglobulinemia; In combination with rituximab for treatment of patients with WM; Patients with steroid dependent or refractory chronic graft versus host disease	BRAF and CRAF kinases inhibitor
IDELALISIB	ZYDELIG	2015	No	Chronic lymphocytic leukemia; Follicular lymphoma	RAS/MEK/ERK inhibitor
Ipilimumab	YERVOY	2012	Yes	Unresectable or metastatic melanoma; Metastatic renal cell carcinoma	targeting CTLA-4
IXAZOMIB CITRATE	NINLARO	2016	No	Treatment of multiple myeloma in those who have received at least one prior treatment	targets DNA synthesis
LAPATINIB (LAPATINIB DITOSYLATE MONOHYDRATE)	TYKERB	2009	No	In combination with capecitabine for the treatment of patients with metastatic breast cancer whose tumours overexpress ErbB2; In combination with letrozole for the treatment of post-menopausal patients with hormone receptor positive metastatic breast cancer, whose tumours overexpress the ErbB2 receptor, and who are suitable for endocrine therapy.	EGFR inhibitor
LENALIDOMIDE	REVLIMID	2008	No	To treat transfusion-dependant anemia due to low- or intermediate-1 risk myelodysplastic syndromes associated with a deletion 5q cytogenetic abnormality with or without additional cytogenetic abnormalities; multiple myeloma in those who are not eligible for stem cell transplant	Akt core signalling pathway
LENVATINIB MESYLATE	LENVIMA	2015	No	Treatment of patients with locally recurrent or metastatic, progressive, radioactive; In combination with everolimus for the treatment of patients with advanced renal cell carcinoma (RCC) following one prior vascular endothelial growth factor (VEGF)-targeted therapy; iodine-refractory differentiated thyroid cancer (DTC); For the first-line treatment of adult patients with unresectable hepatocellular carcinoma (HCC). Efficacy and safety data for Child-Pugh Class B and Class C are not available; In combination with pembrolizumab, for the treatment of adult patients with advanced endometrial carcinoma that is not microsatellite instability high (MSI-H) or mismatch repair deficient (dMMR), who have disease progression following prior platinum-based systemic therapy, and are not candidates for curative surgery or radiation.	DNA
NELARABINE	ATRIANCE	2007	No	T-cell acute lymphoblastic leukemia and T-cell lymphoblastic lymphoma	Bruton's tyrosine kinase (Btk) inhibitor

NILOTINIB (NILOTINIB HYDROCHLORIDE MONOHYDRATE)	TASIGNA	2008	No	Treatment of adult patients with newly diagnosed Philadelphia chromosome positive; Treatment of chronic phase (CP) and accelerated phase (AP) Philadelphia chromosome positive chronic myeloid leukemia (Ph+CML) in adult patients resistant to or intolerant of at least one prior therapy including imatinib. chronic myeloid leukemia (Ph+ CML) in chronic phase (CP).	proteasome inhibitor
NIVOLUMAB	OPDIVO	2015	Yes	Unresectable or metastatic melanoma; Adjuvant treatment of melanoma; Metastatic Non-Small Cell Lung Cancer; Metastatic Renal Cell Carcinoma; Squamous Cell Carcinoma of the Head and Neck; Classical Hodgkin Lymphoma; Hepatocellular carcinoma	TP53 (tumor protein) dependant activation
OBINUTUZUMAB	GAZYVA	2014	Yes	Chronic lymphocytic leukemia; Follicular lymphoma	antagonist of smoothened receptors
OFATUMUMAB	ARZERRA	2012	Yes	Chronic lymphocytic leukemia	Anti-CD20 monoclonal antibody
OLAPARIB	LYNPARZA	2016	No	Monotherapy for the maintenance treatment of adult patients with platinum-sensitive relapsed (PSR) BRCA-mutated (germline or somatic) high grade serous epithelial ovarian, fallopian tube or primary peritoneal cancer who are in response (complete response or partial response) to platinum-based chemotherapy.	SLAMF7 protein
OSIMERTINIB MESYLATE	TAGRISSO	2016	No	EGFR Mutation-Positive NSCLC; EGFR T790M Mutation-Positive NSCLC	EGFR inhibitor
OXALIPLATIN	ELOXATIN	2007	No	Adjuvant treatment of patients with stage III colon cancer after complete resection of primary tumor; Treatment of patients with metastatic colorectal cancer	Targets DNA synthesis
PALBOCICLIB	IBRANCE	2016	No	Treatment of patients with hormone receptor (HR)- positive, human epidermal growth factor receptor 2 (HER2)-negative locally advanced or metastatic breast cancer in combination with an aromatase inhibitor as initial endocrine-based therapy in post-menopausal women or men; or fulvestrant in patients with disease progression after prior endocrine therapy. Pre- or perimenopausal women must also be treated with a luteinizing hormone releasing hormone (LHRH) agonist.	BRAF inhibitor:
PANITUMUMAB	VECTIBIX	2008	Yes	Treatment of previously untreated patients with non-mutated RAS metastatic colorectal carcinoma in combination with FolFox; As a monotherapy for the treatment of patients with non-mutated RAS mCRC after failure of fluoropyrimidine-oxaliplatin, and irinotecan-containing chemotherapy regimens.	EGFR inhibitor
Pazopanib Hydrochloride	VOTRIENT	2010	No	Renal Cell Carcinoma; Soft tissue carcinoma	EGFR inhibitor
PEMBROLIZUMAB	KEYTRUDA	2015	Yes	Melanoma; Non-Small Cell Lung Carcinoma; Hodgkin Lymphoma; Primary Mediastinal B-Cell Lymphoma; Urothelial Carcinoma; Renal Cell Carcinoma; Microsatellite Instability-High Cancer; Endometrial carcinomas	protein Cereblon CBL

PERTUZUMAB/TRASTUZUMAB	PERJETA	2013	Yes	Metastatic Breast Cancer; Early breast cancer	EGFR inhibitor
PONATINIB HYDROCHLORIDE	ICLUSIG	2015	Yes	Chronic phase, accelerated phase, or blast phase chronic myeloid leukemia or Philadelphia chromosome positive acute lymphoblastic leukemia for whom other tyrosine kinase inhibitor therapy is not appropriate	BCR-ABL inhibitor
RADIUM (223Ra) DICHLORIDE	XOFIGO	2013	No	Castration resistant prostate cancer with symptomatic bone metastases and no known visceral metastatic disease.	VEGFR, EGFR, and RET tyrosine kinases inhibitor
RAMUCIRUMAB	CYRAMZA	2015	Yes	Gastric cancer	HER2 receptor signaling inhibitor
REGORAFENIB	STIVARGA	2013	No	Metastatic colorectal cancer who have been previously treated with fluoropyrimidine-based chemotherapy, oxaliplatin, irinotecan, and anti-VEGF therapy, and if RAS wild type, an anti-EGFR therapy; Treatment of adult patients with metastatic and/or unresectable gastrointestinal stromal tumors who have disease progression or on intolerance to imatinib mesylate and sunitinib malate treatment; Treatment of patients with hepatocellular carcinoma who have been previously treated with sorafenib	DNA methyltransferase inhibitors
ROMIDEPSIN	ISTODAX	2013	No	Relapsed/refractory peripheral T-cell lymphoma who are not eligible for transplant and have received at least one prior systemic therapy	Epidermal Growth Factor Receptor
TEMSIROLIMUS	TORISEL	2007	No	Metastatic renal cell carcinoma	proteasome inhibitor
TRABECTEDIN	YONDELIS	2010	No	In combination with Caelyx for treatment of platinum-sensitive ovarian cancer; for treatment of patients with metastatic liposarcoma or leiomyosarcoma	DNA
Trametinib	MEKINIST	2013	No	Unresectable or metastatic melanoma with a BRAF V600 mutation; Adjuvant treatment of melanoma; Metastatic Non-Small Cell Lung Cancer	microtubule-targeting agent:
TRASTUZUMAB EMTANSINE	KADCYLA	2013	Yes	Metastatic breast cancer; early breast cancer	histone deacetylases
VANDETANIB	CAPRELSA	2012	No	For treatment of symptomatic or progressive medullary thyroid cancer in adult patients with unresectable locally advanced or metastatic disease	mitogen-activated extracellular signal regulated kinase 1 (MEK1) inhibitor and MEK2 activation

VEMURAFENIB	ZELBORAF	2012	No	Monotherapy for BRAF V600 mutation-positive unresectable or metastatic melanoma.	Bcr-Abl tyrosine kinase protein inhibitor
VENETOCLAX	VENCLEXTA	2016	No	Chronic lymphocytic leukemia for those who have received at least one prior therapy; Monotherapy for patients with CLL with 17p deletion who have received at least one prior therapy and for whom there are no other available treatment options	Epidermal Growth Factor Receptor
VISMODEGIB	ERIVEDGE	2013	No	Treatment of adults with histologically confirmed metastatic basal cell carcinoma or locally advanced basal cell carcinoma inappropriate for surgery or radiotherapy	ALK/MET tyrosine kinase inhibitor
VORINOSTAT	ZOLINZA	2009	No	Cutaneous manifestations in patients with advanced cutaneous T-cell lymphoma who have progressive, persistent or recurrent disease subsequent to prior systemic therapies	EGFR R inhibitor