Regimen Monograph

Regimen Name | Drug Regimen | Cycle Frequency | Premedication and Supportive Measures | Dose Modifications | Adverse Effects | Interactions | Drug Administration and Special Precautions | Recommended Clinical Monitoring | Administrative Information | References | Other Notes | Disclaimer

A - Regimen Name

SELP Regimen

selpercatinib

Disease Site	Lung Non-Small Cell
Intent	Palliative
Regimen Category	**Evidence-Informed :** Regimen is considered appropriate as part of the standard care of patients; meaningfully improves outcomes (survival, quality of life), tolerability or costs compared to alternatives (recommended by the Disease Site Team and national consensus body e.g. pan-Canadian Oncology Drug Review, pCODR). Recommendation is based on an appropriately conducted phase III clinical trial relevant to the Canadian context OR (where phase III trials are not feasible) an appropriately sized phase II trial. Regimens where one or more drugs are not approved by Health Canada for any indication will be identified under Rationale and Use.
Rationale and Uses	Treatment of metastatic RET fusion-positive non-small cell lung cancer (NSCLC) (Refer to EAP for detailed funding criteria)
Supplementary Public Funding	**selpercatinib** Exceptional Access Program (selpercatinib - For the treatment of metastatic RET fusion-positive non-small cell lung cancer (NSCLC)) (EAP Website)

back to top

B - Drug Regimen

Patients with Body Weight (BW) < 50 kg:

selpercatinib	120 mg	PO	BID (every 12 hours)

Patients with Body Weight (BW) ≥ 50 kg:

selpercatinib	160 mg	PO	BID (every 12 hours)

back to top

C - Cycle Frequency

CONTINUOUS TREATMENT

Until clinically meaningful disease progression* or unacceptable toxicity

(*Refer to CADTH recommendations and Drilon et al)

back to top

D - Premedication and Supportive Measures

Antiemetic Regimen: Low – No routine prophylaxis; PRN recommended

- Also refer to CCO Antiemetic Recommendations.

Screen for hepatitis B virus in all cancer patients starting systemic treatment. Refer to the hepatitis B virus screening and management guideline.

Other Supportive Care:

- Consider appropriate prophylaxis including hydration for patients at risk of tumour lysis syndrome (e.g. rapidly growing tumors, high tumor burden, renal dysfunction, or dehydration).

back to top

E - Dose Modifications

Doses should be modified according to the protocol by which the patient is being treated.

Confirm RET gene fusion or mutation using a validated test before initiation.

Hypertension should be well-controlled prior to initiation of treatment.

Patients must have a QTcF interval of ≤ 470 ms and serum electrolytes within normal range before starting treatment.

Hold selpercatinib for ≥ 7 days prior to elective surgery. Do not administer for ≥ 2 weeks following major surgery and until adequate wound healing.

Refer to Interactions section for dosing recommendations when co-administered with **CYP3A4 inhibitors.**

Dosage with toxicity

Dose Levels	Selpercatinib Dose < 50 kg BW	Selpercatinib Dose ≥ 50 kg BW
0	120 mg twice daily	160 mg twice daily
-1	80 mg twice daily	120 mg twice daily
-2	40 mg twice daily	80 mg twice daily
-3	40 mg **once** daily	40 mg twice daily
-4	Discontinue	Discontinue

Toxicity	Severity	Action
QT Prolongation	Grade 3	Hold until resolved to Grade 1 or baseline. Resume at 1 dose level ↓. If recurs despite **2** dose reductions, discontinue.
	Grade 4 or signs and symptoms of serious arrhythmia	Discontinue.
↑ AST or ALT	Grade 3 or 4	Hold until resolved to Grade 1 or baseline; monitor AST or ALT weekly. Resume at **2** dose levels ↓; continue AST or ALT weekly monitoring. Increase by 1 dose level after ≥ 2 weeks without recurrence, and then increase to dose taken prior to the onset of toxicity after ≥ 4 weeks without recurrence. Continue AST or ALT weekly monitoring for 4 weeks thereafter. If recurs despite dose reductions, discontinue.
Hypersensitivity	Any	Hold until resolved; begin steroid treatment. Resume at **3** dose levels ↓ while continuing steroid treatment. Increase selpercatinib by 1 dose level weekly if no recurrence. Taper steroid dose after selpercatinib has been tolerated for ≥ 7 days at the dose taken prior to the onset of toxicity. If recurs despite dose reductions, discontinue.
Hypertension	Grade 3	Hold until controlled with medical management. Resume at 1 dose level ↓.
	Grade 4 or significant hypertension that cannot be controlled with antihypertensive therapy	Discontinue.

Hemorrhagic Events	Grade 3 or 4	Hold until resolved to ≤ Grade 1 or baseline. Discontinue for severe or life-threatening events.
Interstitial Lung Disease / Pneumonitis	Grade 2 that does not resolve to baseline or grade 1 within 7 days (despite maximal supportive measures)	Hold until resolved to Grade 1 or baseline. Resume at 1 dose level ↓.
	Grade 3 or 4	Discontinue.
Other Adverse Reactions	Grade 3 or 4	Hold until resolved to ≤ Grade 1 or baseline. Resume at a reduced dose.

Hepatic Impairment

Limited safety data are available in patients with severe hepatic impairment; monitor ALT and AST more frequently as clinically indicated.

Hepatic Impairment	Selpercatinib Dose (regardless of BW)
Child-Pugh class A or B	No dose adjustment
Child-Pugh class C	80 mg twice daily

Renal Impairment

No dosage adjustment is necessary in patients with mild, moderate or severe renal impairment. Selpercatinib is not recommended in patients with end-stage renal disease.

Dosage in the Elderly

No overall differences in safety or efficacy observed between patients ≥ 65 years of age and younger patients.

back to top

F - Adverse Effects

Refer to selpercatinib drug monograph(s) for additional details of adverse effects.

Very common (≥ 50%)	Common (25-49%)	Less common (10-24%)	Uncommon (< 10%), but may be severe or life-threatening
• Edema • Diarrhea	• Fatigue • Dry mouth • Hypertension (may be severe) • ↑ LFTs (may be severe) • Rash • Abdominal pain • Constipation • Nausea, vomiting • Headache • Cough, dyspnea	• Hemorrhage (may be severe) • Musculoskeletal pain • Anorexia, weight loss • Dizziness • QT interval prolonged (may be severe) • Abnormal electrolyte(s) • Mucositis • Myelosuppression ± infection • Erectile dysfunction • Hypothyroidism • Insomnia • ↓ albumin • Ascites • Pleural effusion • ↑ Bilirubin • Weight gain • Alopecia	• Atrial fibrillation • Venous thromboembolism • Pericardial effusion • Pleural effusion • Pneumonitis • Hypersensitivity • Creatinine increased • Chylothorax • Tumour lysis syndrome

back to top

G - Interactions

Refer to selpercatinib drug monograph(s) for additional details.

- Avoid concomitant use with strong or moderate CYP3A4 inhibitors. If unavoidable, ↓ selpercatinib dose and perform ECG more frequently. Refer to table below.
- Avoid concomitant use with strong or moderate CYP3A4 inducers.
- Avoid concomitant use with sensitive CYP3A4 or CYP2C8 substrates. If unavoidable, ↓ substrate dose as per product monograph.
- Avoid coadministration with PPIs. If unavoidable, administer selpercatinib with food.
- Avoid coadministration with H2 receptor antagonists. If unavoidable, administer selpercatinib 2 hours before or 10 hours after H2 receptor antagonist.
- Avoid coadministration with antacids. If unavoidable, administer selpercatinib 2 hours before or 2 hours after antacids.
- Avoid concomitant use with BCRP or P-gp substrates with a narrow therapeutic range. If unavoidable, follow recommendations for BCRP or P-gp substrates as per product monograph.
- Avoid concomitant use with drugs that may prolong QT. If unavoidable, monitor ECG and electrolytes.
- Avoid concomitant use with drugs that disrupt electrolyte levels, if possible.
- Avoid concomitant use with drugs that reduce heart rate.

Dose Modification when Co-administered with CYP3A4 Inhibitors

Planned Selpercatinib Dose (mg twice daily)	Selpercatinib Dose (mg twice daily)	
	with Moderate CYP3A4 inhibitor*	with Strong CYP3A4 inhibitor*
120	80	40
160	120	80

*After the inhibitor has been discontinued for 3 to 5 elimination half-lives of the inhibitor, resume selpercatinib at the dose taken before starting the CYP3A4 inhibitor.

There is no data on the safety of concomitant use of CYP3A inhibitors in patients whose dose was previously reduced due to adverse effects

back to top

H - Drug Administration and Special Precautions

Refer to selpercatinib drug monograph(s) for additional details.

Administration

- Administer selpercatinib with or without food. Refer to Interaction section when given concomitantly with PPIs, H2 receptor antagonists, or antacids.
- Capsules should be swallowed whole with a glass of water and not opened, crushed, or chewed.
- Grapefruit, starfruit, Seville oranges, their juices or products should be avoided during selpercatinib treatment.
- If a dose is missed, the dose may be taken if there are ≥ 6 hours until the next dose. If there are < 6 hours until the next dose, the dose should be skipped and the next dose should be taken at the scheduled time. Patients should not take 2 doses at the same time to make up for a missed dose.
- If the patient vomits after taking a dose, an additional dose should not be taken. The next dose should be continued as scheduled.
- Store at room temperature (15° to 30°C).

Contraindications

- Patients who have a hypersensitivity to this drug or any of its components

Other Warnings/Precautions

- Avoid use of selpercatinib in patients with conditions that may increase the risk of experiencing torsade de pointes.
- Patients should exercise caution when driving or operating a vehicle or potentially dangerous machinery as dizziness has been reported.

Pregnancy/Lactation

- This regimen is not recommended for use in pregnancy. Adequate contraception should be used by patients and their partners while on treatment and after the last treatment dose. Recommended methods and duration of contraception may differ depending on the treatment. Refer to the drug monograph(s) for more information.
- Breastfeeding is not recommended during this treatment and after the last treatment dose. Refer to the drug monograph(s) for recommendations after the last treatment dose (if available).
- Fertility effects: Probable

back to top

I - Recommended Clinical Monitoring

Treating physicians may decide to monitor more or less frequently for individual patients but should always consider recommendations from the product monograph.

Refer to the hepatitis B virus screening and management guideline for monitoring during and after treatment.

Recommended Clinical Monitoring

- Liver function tests; Baseline, every 2 weeks for 3 months after initiation, then monthly, and as clinically indicated.
- ECG; Baseline, 1 week after initiation, then monthly for 6 months, and as clinically indicated
- Electrolytes, including K, Mg, Ca; Baseline, 1 week after initiation, then monthly for 6 months, and as clinically indicated
- Blood pressure; Baseline, 1 week after initiation, then monthly for 6 months, and as clinically indicated
- CBC; Baseline, monthly and as clinically indicated
- Thyroid function tests; Baseline and as clinically indicated
- Renal function tests*; Baseline and as clinically indicated
- Clinical toxicity assessment for hypersensitivity, pneumonitis, TLS, infection, bleeding, delayed wound healing (if applicable), GI, and cardiovascular effects; At each visit
- Grade toxicity using the current NCI-CTCAE (Common Terminology Criteria for Adverse Events) version

*Selpercatinib may increase serum creatinine, without affecting glomerular function, by inhibiting renal tubular secretion transporters. Consider alternative markers that are not based on creatinine (e.g. BUN) for determining renal function

back to top

J - Administrative Information

Outpatient prescription for home administration

back to top

K - References

CADTH reimbursement recommendation: selpercatinib (metastatic RET fusion-positive non-small cell lung cancer). May 2022.

Drilon A, Oxnard GR, Tan DSW, et al. Efficacy of selpercatinib in RET fusion-positive non-small-cell lung cancer. N Engl J Med 2020;383(9):813-24.

Selpercatinib drug monograph. Ontario Health (Cancer Care Ontario).

April 2025 Expanded into full regimen monograph

back to top

M - Disclaimer

Regimen Abstracts

A Regimen Abstract is an abbreviated version of a Regimen Monograph and contains only top level information on usage, dosing, schedule, cycle length and special notes (if available). It is intended for healthcare providers and is to be used for informational purposes only. It is not intended to constitute or be a substitute for medical advice, and all uses of the Regimen Abstract are subject to clinical judgment. Such information is provided on an "as-is" basis, without any representation, warranty, or condition, whether express, or implied, statutory or otherwise, as to the information's quality, accuracy, currency, completeness, or reliability, and Cancer Care Ontario disclaims all liability for the use of this information, and for any claims, actions, demands or suits that arise from such use.

Information in regimen abstracts is accurate to the extent of the ST-QBP regimen master listings, and has not undergone the full review process of a regimen monograph. Full regimen monographs will be published for each ST-QBP regimen as they are developed.

Regimen Monographs

Refer to the New Drug Funding Program or Ontario Public Drug Programs websites for the most up-to-date public funding information.

The information set out in the drug monographs, regimen monographs, appendices and symptom management information (for health professionals) contained in the Drug Formulary (the "Formulary") is intended for healthcare

providers and is to be used for informational purposes only. The information is not intended to cover all possible uses, directions, precautions, drug interactions or adverse effects of a particular drug, nor should it be construed to indicate that use of a particular drug is safe, appropriate or effective for a given condition. The information in the Formulary is not intended to constitute or be a substitute for medical advice and should not be relied upon in any such regard. All uses of the Formulary are subject to clinical judgment and actual prescribing patterns may not follow the information provided in the Formulary.

The format and content of the drug monographs, regimen monographs, appendices and symptom management information contained in the Formulary will change as they are reviewed and revised on a periodic basis. The date of last revision will be visible on each page of the monograph and regimen. Since standards of usage are constantly evolving, it is advised that the Formulary not be used as the sole source of information. It is strongly recommended that original references or product monograph be consulted prior to using a chemotherapy regimen for the first time.

Some Formulary documents, such as the medication information sheets, regimen information sheets and symptom management information (for patients), are intended for patients. Patients should always consult with their healthcare provider if they have questions regarding any information set out in the Formulary documents.

While care has been taken in the preparation of the information contained in the Formulary, such information is provided on an "as-is" basis, without any representation, warranty, or condition, whether express, or implied, statutory or otherwise, as to the information's quality, accuracy, currency, completeness, or reliability.

CCO and the Formulary's content providers shall have no liability, whether direct, indirect, consequential, contingent, special, or incidental, related to or arising from the information in the Formulary or its use thereof, whether based on breach of contract or tort (including negligence), and even if advised of the possibility thereof. Anyone using the information in the Formulary does so at his or her own risk, and by using such information, agrees to indemnify CCO and its content providers from any and all liability, loss, damages, costs and expenses (including legal fees and expenses) arising from such person's use of the information in the Formulary.

back to top