

Regimen Reference Order

THOR – pembrolizumab + gemcitabine + CARBOplatin

ARIA: LUNG - [pembro + gem + CARBO]

LUNG - [pembro q 21 d (maintenance)]

LUNG - [pembro q 42 d (maintenance)]

Planned Course: pembrolizumab + gemcitabine + CARBOplatin every 21 days for 4 cycles, followed by pembrolizumab every 21 days up to 31 cycles or until disease progression or unacceptable toxicity (maximum 2 years of therapy)

OR

pembrolizumab + gemcitabine + CARBOplatin every 21 days for 4 cycles, followed by pembrolizumab every 42 days up to 16 cycles or until disease progression or unacceptable toxicity (maximum 2 years of therapy)

Indication for Use: Lung Cancer Non-Small Cell Squamous Metastatic

Drug Alert: Immune Checkpoint Inhibitor (pembrolizumab)

CVAD: At Provider’s Discretion

Proceed with treatment if:

Day 1 of Cycles 1 to 4

- ANC equal to or greater than $1.5 \times 10^9/L$ AND Platelets equal to or greater than $100 \times 10^9/L$
- AST/ALT equal to or less than 3 times the upper limit of normal
- Total bilirubin equal to or less than 1.5 times the upper limit of normal
- Creatinine clearance is equal to or greater than 30 mL/minute

Day 8 of Cycles 1 to 4

- ANC equal to or greater than $1.5 \times 10^9/L$ AND Platelets equal to or greater than $100 \times 10^9/L$

pembrolizumab Maintenance

- ANC equal to or greater than $1.5 \times 10^9/L$ AND Platelets equal to or greater than $50 \times 10^9/L$
- AST/ALT equal to or less than 3 times the upper limit of normal
- Total bilirubin equal to or less than 1.5 times the upper limit of normal
- Creatinine clearance is equal to or greater than 30 mL/minute

❖ Contact Physician if parameters not met

SEQUENCE OF MEDICATION ADMINISTRATION

Pre-treatment Requirements

Drug	Dose	CCMB Administration Guideline
Not Applicable		

Treatment Regimen – THOR – pembrolizumab + gemcitabine + CARBOplatin

Establish primary solution 500 mL of: normal saline

Drug	Dose	CCMB Administration Guideline
pembrolizumab + gemcitabine + CARBOplatin (Cycles 1 to 4)		
Day 1		
pembrolizumab	2 mg/kg	IV in normal saline 50 mL over 30 minutes <i>Use 0.2 or 0.22 micron filter</i>
aprepitant	125 mg	Orally 1 hour pre-chemotherapy
ondansetron	16 mg	Orally 30 minutes pre-chemotherapy
dexamethasone	12 mg	Orally 30 minutes pre-chemotherapy
gemcitabine	1000 mg/m ²	IV in normal saline 250 mL over 30 minutes
CARBOplatin	AUC 5 mg/mL.min; maximum dose 750 mg (see table below)	IV in D5W 250 mL over 30 minutes
Day 8		
dexamethasone	8 mg	Orally 30 minutes pre-chemotherapy
gemcitabine	1000 mg/m ²	IV in normal saline 250 mL over 30 minutes
pembrolizumab Maintenance (Cycles 1 to 31 OR Cycles 1 to 16)		
pembrolizumab	2 mg/kg (every 21 days) OR	IV in normal saline 50 mL over 30 minutes <i>Use 0.2 or 0.22 micron filter</i>
	4 mg/kg (every 42 days)	
Maximum pembrolizumab dose is 200 mg (every 21 days) or 400 mg (every 42 days)		
All doses will be automatically rounded that fall within CCMB Approved Dose Bands. See Dose Banding document for more information		

In the event of an infusion-related hypersensitivity reaction, refer to the 'Hypersensitivity Reaction Standing Order'

REQUIRED MONITORING

All Cycles

Day 1

- CBC, serum creatinine, urea, electrolytes, liver enzymes, total bilirubin, albumin, glucose and TSH as per Physician Orders
- Medical oncologist or designate (i.e. family practitioner in oncology) must assess patient for immune-mediated adverse reactions prior to each cycle
- Full vital signs (temperature, heart rate, respiratory rate, blood pressure and O₂ saturation) at baseline and as clinically indicated
- No observation period is required after pembrolizumab administration. Patient can be discharged from treatment room if stable whether they had a reaction or not

Cycles 1 to 4

Day 8

- CBC

Recommended Support Medications

Drug	Dose	CCMB Administration Guideline
pembrolizumab + gemcitabine + CARBOplatin (Cycles 1 to 4)		
aprepitant	80 mg	Orally once daily on Days 2 and 3
dexamethasone	8 mg	Orally once daily on Days 2 and 3
metoclopramide	10 – 20 mg	Orally every 4 hours as needed for nausea and vomiting
pembrolizumab Maintenance (Cycles 1 to 31 OR Cycles 1 to 16)		
None required		

DISCHARGE INSTRUCTIONS

All Cycles

- Patient should be instructed to contact their cancer team immediately if symptoms of hypersensitivity reactions occur after discharge
- Confirm that patient has received the CCMB Immune Checkpoint Inhibitor Medical Alert wallet card
- Reinforce to patient the immune-mediated adverse reactions and importance of reporting immediately
 - For severe symptoms, the patient should be instructed to go to the nearest emergency room. Oncologist on call should be contacted

Cycles 1 to 4

- Instruct patient to continue taking anti-emetic(s) at home
- Reinforce applicable safe handling precautions of medications, blood and body fluids for 48 hours after completion of chemotherapy

ADDITIONAL INFORMATION

- pembrolizumab is an Immune Checkpoint Inhibitor. Consult with oncologist for immune-mediated adverse reactions; corticosteroids are often indicated
- Upon completion of 4 cycles of LUNG - [pembro + gem + CARBO], patients should be started on maintenance treatment with LUNG - [pembro q 21 d (maintenance)] or LUNG - [pembro q 42 d (maintenance)]
 - LUNG - [pembro q 21 d (maintenance)] or LUNG - [pembro q 42 d (maintenance)] regimen starts three weeks after completing LUNG - [pembro + gem + CARBO]
- CARBOplatin dose considerations:
 - CCMB Thoracic DSG uses **actual body weight** to calculate GFR
 - CCMB Thoracic DSG uses a maximum CARBOplatin dose of 750 mg for this regimen
 - If calculated CARBOplatin dose differs **more than 10%** from prescribed CARBOplatin dose, contact the prescriber

**CARBOplatin Dosing Calculations
per CCMB Thoracic DSG**

Calculation of CARBOplatin dose: (maximum 750 mg)

Dose (mg) = target AUC (GFR + 25)

$$\text{GFR} = \frac{N \times (140 - \text{age in years}) \times \text{Actual Body Weight (kg)}}{\text{serum creatinine in micromol/L}} = \text{___ mL/min}$$

N = 1.23 in males
N = 1.04 in females

AUC (mg/mL.min) <hr style="width: 50%; margin: 0 auto;"/>	X	GFR + 25 (mL/min) <hr style="width: 50%; margin: 0 auto;"/>	=	Total Dose (mg) <hr style="width: 50%; margin: 0 auto;"/>
5		___ + 25		

AUC = Area Under Curve

The estimated creatinine clearance is based on limited evidence. Sound clinical judgment and interpretation of the estimation are required, because the equation above may not be appropriate for some patient populations (for example, acute renal failure).