CADTH REIMBURSEMENT REVIEW

Patient and Clinician Group Input

lisocabtagene maraleucel (Breyanzi)

(Bristol Myers Squibb Canada)

Indication: Breyanzi (lisocabtagene maraleucel) is a CD19-directed genetically modified autologous T cell immunotherapy indicated for the treatment of adult patients with large B-cell lymphoma, including diffuse large B-cell lymphoma (DLBCL) not otherwise specified, primary mediastinal large B-cell lymphoma (PMBCL), high grade B-cell lymphoma, and DLBCL arising from follicular lymphoma, who are refractory or have relapsed within 12 months of initial therapy and are candidates for autologous haematopoietic stem cell transplant (HSCT).

May 21, 2024

Patient Group Input

Name of Drug: lisocabtagene maraleucel (Breyanzi)
Indication: Breyanzi (lisocabtagene maraleucel) is a CD19-directed genetically modified autologous T cell immunotherapy indicated for the treatment of adult patients with large B-cell lymphoma, including diffuse large B-cell lymphoma (DLBCL) not otherwise specified, primary mediastinal large B-cell lymphoma (PMBCL), high grade B-cell lymphoma, and DLBCL arising from follicular lymphoma, who are refractory or have relapsed within 12 months of initial therapy and are candidates for autologous haematopoietic stem cell transplant (HSCT).
Name of Patient Group: Lymphoma Canada
Author of Submission: Gurjot Basra, Manager of Patient Programs, Research, and Advocacy

1. About Your Patient Group

Lymphoma Canada is a national Canadian registered charity whose mission it is to empower patients and the lymphoma community through education, support, advocacy, and research. Based out of Mississauga (ON), we collaborate with patients, caregivers, healthcare professionals, and other organizations and stakeholders, to promote early detection, find new and better treatments for lymphoma patients, help patients access those treatments, learn about the causes of lymphoma, and work together to find a cure. Resources are provided in both English and French. www.lymphoma.ca

2. Information Gathering

The data presented in this submission was collected from an online anonymous patient survey, created and promoted by Lymphoma Canada (LC) available from March 18 to May 13, 2024. The link was promoted via e-mail to patients registered in the LC national emailing list and made available via social media outlets, including Twitter, Instagram, and Facebook accounts. As there is no experience with this therapy in the second line setting in Canada, LC reached out to clinicians/researchers found on the clinicaltrials.gov database whom were conducting or were involved in trials with this therapy and indication, requesting to share the LC survey with patients involved in their trials. The survey had a combination of multiple choice, rating, and open-ended questions. Skipping logic was built into the survey so that respondents were asked questions only relevant to them. Open-ended responses were noted in this report verbatim, to provide a deeper understanding of patient perspectives. 90 responses were collected amongst those who had Large B-cell lymphoma (LBCL). Information from this survey was used to identify the main areas of concern for patients with LBCL, with 23 confirmed responses for experience with Liso-cel in third line or greater, and 5 confirmed responses for experience with this therapy in the second line. Of the five patients who received this therapy in second line, 2 were male and 3 were female, ages ranging from 25-44.

Please see tables 1-4 below for demographic and relevant information of all survey respondents. The majority of patients lived in Canada (66%), between the age of 25 and 34 (30%) or 35 and 44 (21%), female (53%), and

were diagnosed 1-2 years ago (38%), 3-5 years ago (33%), or less than a year ago (18%), with most diagnosed with Diffuse Large B-cell lymphoma, not otherwise specified (38%).

Table 1: Country of respondents from Lymphoma Canada survey

Respondents	CAN	USA	Angola	Afghanistan	Andorra	Armenia	Lebanon	Skipped	Total
Patients with Large B-cell lymphoma	47	18	2	1	1	1	1	19	90

Table 2: Age range of respondents from Lymphoma Canada survey

Respondents	Age (years old)								
	18-24	25-34	35-54	45-54	55-64	65-74	75-84	Over 90	Skipped	Total
Patients with Large B-cell lymphoma	1	21	15	6	8	12	7	0	20	90

Table 3: Gender of respondents from Lymphoma Canada survey

Respondents	Gender			
	Female	Male	Skipped	Total
Patients with Large B-cell lymphoma	32	38	19	90

Table 4: Number of years ago respondents were diagnosed with Large B-cell Lymphoma

Respondents	Years						
	<1	1-2	3-5	5-8	9-10	Skipped	Total
Patients with Large B-cell lymphoma	16	34	30	4	6	0	90

Table 5: Subtype of Large B-cell lymphoma of survey respondents

Subtype of Large B-cell Lymphoma	Number of respondents
Diffuse Large B-cell Lymphoma, not otherwise specified	34
DLBCL arising from follicular lymphoma	8
primary mediastinal B-cell lymphoma	29
high-grade B-cell lymphoma	8
Other	10
Skipped	1
Total	90

3. Disease Experience

At Diagnosis

Through Lymphoma Canada's online survey, patients were asked to rate a list of physical symptoms on a scale of 1 (no impact) to 5 (significant impact) in regards to their quality of life upon diagnosis. The most common reported symptoms rated as a five were: Fatigue/lack of energy (24%), enlarged lymph nodes (22%), indigestion, abdominal pain or bloating (14%), body aches and pains (13%), bodily swelling (13%), and night sweats (13%).

Respondents of the survey were also asked to select from a list of psychosocial impacts they experienced when diagnosed with LBCL. Of the 90 patients that responded to the survey question, 68% experienced stress/worry, 58% were impacted by stress of diagnosis, 56% experienced difficulty sleeping, while 49% were fearful of progression. Other challenges included fear of not being able to continue daily activities (43%), problems concentrating (33%), depression (31%), and fear of not being able to attend school/work (30%).

When asked to provide additional details about the challenges faced during diagnosis, several patients commented on difficult symptoms and increased anxiety/fears:

- "I felt like I was breathing through a straw, I was scared to sleep worried of obstruction. I had to sleep upright."

- “Often have nightmares, wake up in the middle of the night, break out in a cold sweat, and then have trouble falling asleep.”
- “I don't have much expectation for life. Every day is very violent.”
- “Emotional and mental rollercoaster of an experience”
- “The pain in my back got worse after discovering the 1st tumour at T20-T11. It was at the height of Covid (07/2020), two weeks after the initial finding it had to be hospitalized due to severe pain. Thats when the second tumour inside T10 was discovered.”

Current Quality of Life

To understand the factors which currently impact patients with Large B-cell lymphoma, respondents were asked a similar style of questions from the diagnosis section of the survey. On a scale of 1 (no impact) to 5 (significant impact), 32% of patients rated indigestion, abdominal pain or bloating as a 4 or 5, and 30% of patients rated fatigue and lack of energy as a 4 or 5.

Patients also indicated they recently experienced mental health challenges such as fear of progression/relapse (66%), anxiety/worry (58%), and stress of having cancer (35%).

Daily Activities

Regarding day-to-day activities, patients with Large B-cell lymphoma rated several factors on a scale of 1 (no impact) to 5 (very significant impact) which impacted their daily life. Of the 83 respondents who completed the question, the ability to travel (31%), ability to fulfill family obligations (29%), work, school and volunteer (29%), ability to spend time with family and friends (25%) were rated as a 4 or higher. Many patients left comments in this section and a selection of quotes are included below:

- “Fully impacted negatively and loss of enjoyment of life bedridden daily family breakdown divorce loss of marriage children estranged loss of ability to work loss of full enjoyment of full life unable to function dress daily need help with everything unable to function at all in my basic life care and unable to work as bedridden so in financial ruins and quality of life is also fully ruined!”
- “I was very depressed and emotionally unstable. My family was also in a bad mood because of financial problems. In short, it was very difficult”
- “Basically, I can't go to work, I need someone to take care of me, I can't move easily, I need crutches to walk normally, and the family atmosphere is bad”
- “Slowed me down Easily Fatigued”
- “It made it impossible for me to work and socialize, and I was depressed for a long time.”

Summary of the Disease Experience

- For many patients, to live with LBCL means living with fatigue, anxiety and stress, all of which have a significant impact on a person's quality of life.

4. Experiences With Currently Available Treatments

Patients who completed the Lymphoma Canada survey were asked how many lines of treatment they received to treat their Large B-cell lymphoma. The majority of patients indicated they received 1 (42%) or 2 (33%) lines of treatment, see Table 6.

Table 6: Number of lines of therapy survey respondents received

Respondents	Have not yet received therapy	1	2	3+	Skipped	Total
Patients with Large B-cell lymphoma	5	33	26	15	11	90

In the front-line setting, 42 patients received R-CHOP, 19 received DA-EPOCH-R, and 8 received radiation. In second line, 15 patients received salvage therapy + autologous stem cell transplant, 10 received radiation, 7 received R-ICE, 7 patients received R-DHAP, and 6 patients received R-GDP. In the third line of treatment, 14 patients received Pola-BR, 13 patients received CAR T-cell therapy, 9 received Glofitamab, and 4 were on a clinical trial.

These patients were asked: “How satisfied were you with the number of treatment options available to you for your lymphoma?” 65% of patients indicated they were very satisfied or satisfied with their frontline treatment options. While 44% of survey respondents gave the same rating in second-line treatment, and 43% with their third-line treatment options. This indicates patients are less pleased with their treatment options in second- and third-line settings and more treatment options need to be made available.

When asked which side effects were the most difficult to tolerate many patients indicated fatigue, hair loss, nausea, loss of appetite/weight loss, constipation, joint pain, bodily aches and pain, neuropathy, mouth sores, muscle weakness, and diarrhea. Some patient remarks to this question:

- “the metallic taste in my mouth the "fireworks/zapping" sensation in my brain during chemo + heart/chest pain due to a medication”
- “The most difficult is all the psychosocial impacts and the loss of quality of life and the way you feel like a burden to my loved ones and children!”
- “Neuropathy weakness in hands”

77 patients provided information about their ability to access their LBCL treatment. 26 patients found it not difficult at all or not very difficult to access treatment, while 22 patients had some difficulty and 3 had a lot of difficulty. If patients were not able to access treatment, the main reasons were because the treatment was not available/they could not access the treatment at their local cancer center (56%), or because they lived in a community without a cancer center (10%) or in a province where treatment was not available (6%). Here are some comments from patients in terms of difficulties regarding access to treatment in Canada:

- "Chemo is available in my location for some cancers, but not for lymphoma"
- "I had to travel 3 hours weekly to another city to receive radiation treatment and to put myself and my wife and son in hotel for the week for 3 weeks."
- "I had to travel by ferry and family had to stay in hotel. I was away from home for 6 days each cycle. I lived in Victoria and had to go to Vancouver"
- "Have to travel from BC to Toronto. Very isolating and difficult for my family"
- "Treatment was not in the city in which I live. Had a 45 minute drive to get to Juravinski"

The most common financial implications reported for treatment for LBCL were supplementary drug costs for side effects (43%), travelling costs (41%), medical supplies cost (37%), drug costs (35%), and absence from work (35%)

Summary of the Current Available Therapies

- Side effects of treatment and their impacts on the patient's quality of life remain a significant issue for survey respondents and almost half of respondents indicated the need for more options for 2nd and 3rd line treatment for LBCL.

5. Improved Outcomes

LBCL patients which completed the Lymphoma Canada survey were asked how important it was for a new drug to control/treat their Large B-cell lymphoma. LBCL patients indicated factors such as longer disease remission (61%), longer survival (60%), improved quality of life to perform daily activities (55%), control disease symptoms (55%), and normalize blood counts (54%), were very important to them.

53 out of these 79 patients (67%) indicated they would be willing to tolerate side effects to access new treatment options if side effects were not very severe and short term. 55 patients indicated choice is important to them (scored a 7 or higher out of 10) in deciding to take a drug based on known side effects and

expected outcomes of treatment. When participants were asked if there is currently a need for more therapy options for patients with Large B-cell lymphomas, 52 patients (66%) answered “yes”.

Comments in regards to patient expectations for new therapies to manage lymphoma included:

- “I hope the new treatment won't have so many side effects”
- “ I hope that the new therapy can reduce more side effects and make patients suffer less.”
- “I would have preferred to be treated in my local hospital”
- “The hope is that the new treatment will be more stable and effective in controlling the disease with fewer side effects”
- “My prayer is that I will stay in remission and not need any new therapies to manage my lymphoma. However, if DLBCL recurs, I hope an effective therapy (new?) is available to me.”

Summary of Improved Outcomes

- LBCL patients identified factors important for novel treatments, which included longer life span, longer remission, better quality of life and fewer side effects.
- A majority of patients believe it is very important to have choice in their treatment decision and a variety of treatment options to choose from.

6. Experience With Drug Under Review

From survey responses, 5 patients indicated they were treated with Liso-cel (Breyanzi) in the second line. These patients reside in Canada (1), United States (2), Andorra (1), and Angola (1). 3 individuals were aged 25-34 and all female, and 2 were aged 35-44 and were both male. 3 patients accessed this therapy as part of a clinical trial and 2 received treatment through private insurance. In terms of the stage of their cancer journey, 3 patients are in new remission (less than 6 months) following this therapy in the second line, 1 patient has been in remission for 1-2 years, and 1 patient has been in remission for more than 2 years.

The main side effects reported included decreased appetite (4 patients), nausea/vomiting (3 patients), and fever (2 patients). 1 patient experienced cytokine release syndrome and 2 experienced neutropenia. Psychological impacts included fear of progression/relapse (2), difficulty sleeping (2), loss of sexual desire (2), and anxiety/depression (1).

In terms of overall experience with this therapy, 4 patients rated it good to very good, and all 5 said they would recommend it to other patients with relapsed/refractory LBCL.

Comment shared by one of the respondents from the survey:

- "I am very grateful to my treating doctor."

Summary of Drug under Review

- The patients who had undergone therapy with Liso-cel in second line (2L) experienced fewer side effects, primarily decreased appetite, nausea/vomiting, and fever.
- All 5 patients who received this therapy are still in remission, and all would recommend the therapy to other LBCL patients.

7. Companion Diagnostic Test

N/A

8. Anything Else?

Lymphoma Canada is an advocate for lymphoma patients and their caregivers to have access to novel lymphoma therapies. An increased number of available treatment options gives patients more choice to decide the therapy that is right for their personal goals, with their medical care team. Currently there is an unmet need in terms of 2rd line treatment options for patients with LBCL. DLBCL is a debilitating disease associated with a poor survival prognosis and poor quality of life. Approximately 40% of patients will be refractory or relapse after a first-line therapy. Patients who are refractory to 1L therapy or who relapse within 12 months of diagnosis have a significancy greater risk of death than those who relapse later. About 50% of patients eligible to transplant will not proceed to transplant (receive intensive salvage chemo but no transplant in the end). As a result, the overall cure rate is in the range of 25 to 35%. Liso-cel in the 2L provides a viable option for patients while aligning with patient preferences in terms of increased quality of life with fewer associated side effects.

Appendix: Patient Group Conflict of Interest Declaration

To maintain the objectivity and credibility of the CADTH reimbursement review process, all participants in the drug review processes must disclose any real, potential, or perceived conflicts of interest. This Patient Group Conflict of Interest Declaration is required for participation. Declarations made do not negate or preclude the use of the patient group input. CADTH may contact your group with further questions, as needed.

1. Did you receive help from outside your patient group to complete this submission? If yes, please detail the help and who provided it.

No

2. Did you receive help from outside your patient group to collect or analyze data used in this submission? If yes, please detail the help and who provided it.

No

3. List any companies or organizations that have provided your group with financial payment over the past 2 years AND who may have direct or indirect interest in the drug under review.

Table 1: Financial Disclosures

Check Appropriate Dollar Range With an X. Add additional rows if necessary.

Company	$0 to 5,000	$5,001 to 10,000	$10,001 to 50,000	In Excess of $50,000
AbbVie				X
AstraZeneca				X
Gilead				X
Novartis			X	
Roche		X		
Incyte			X	
BMS				X

I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this patient group with a company, organization, or entity that may place this patient group in a real, potential, or perceived conflict of interest situation.

Name: Gurjot Basra
Position: Manager of Patient Programs, Research, and Advocacy -
Patient Group: Lymphoma Canada
Date: May 21, 2024

CADTH

Clinician Group Input

CADTH Project Number: PG0358
Generic Drug Name (Brand Name): lisocabtagene maraleucel
Indication: <Breyanzi (lisocabtagene maraleucel) is a CD19-directed genetically modified autologous T cell immunotherapy indicated for the treatment of adult patients with large B-cell lymphoma, including diffuse large B-cell lymphoma (DLBCL) not otherwise specified, primary mediastinal large B-cell lymphoma (PMBCL), high grade B-cell lymphoma, and DLBCL arising from follicular lymphoma, who are refractory or have relapsed within 12 months of initial therapy and are candidates for autologous haematopoietic stem cell transplant (HSCT).
Name of Clinician Group: OH (CCO) Hematology Cancer Drug Advisory Committee
Author of Submission: Dr. Tom Kouroukis

1. About Your Clinician Group

OH(CCO)'s Drug Advisory Committees provide timely evidence-based clinical and health system guidance on drug-related issues in support of CCO's mandate, including the Provincial Drug Reimbursement Programs (PDRP) and the Systemic Treatment Program.

2. Information Gathering

Information was gathered via videoconferencing.

3. Current Treatments and Treatment Goals

Current treatments include chemoimmunotherapy, autologous stem cell transplant, however, outcomes would be inferior to liso-cel. This could be a potentially curative therapy for DLBCL. Even if not curative, this may delay disease progression and improve symptoms. Axi-cel is undergoing negotiations for the same indication.

4. Treatment Gaps (unmet needs)

4.1. Considering the treatment goals in Section 3, please describe goals (needs) that are not being met by currently available treatments.

Chemo-refractory DLBCL is difficult to salvage with chemotherapy prior to considering CAR-T as third line therapy (current indication and funding). There may be benefits to having a CAR-T option as second line.

There are patients who would be considered for CAR-T and not ASCT, specifically older patients, primary refractory patients, and early relapse patients. These patients may not tolerate or respond well to further salvage chemotherapy so having a CAR-T option as second line would be preferred.

5. Place in Therapy

5.1. How would the drug under review fit into the current treatment paradigm?

Second line auto transplant is the current standard, but this depends on sensitivity to chemotherapy, which can be challenging for this patient population. For patients without autologous stem cell transplant (i.e., chemo-refractory), this would be the second line option. Axi-cel for the same indication could be a competing treatment.

5.2. Which patients would be best suited for treatment with the drug under review? Which patients would be least suitable for treatment with the drug under review?

Patients who are ineligible for ASCT (i.e., age) may also benefit as long as they remain eligible for CAR-T. Also, for patients relapsing late (i.e., post-1 year) ASCT results are good.

5.3 What outcomes are used to determine whether a patient is responding to treatment in clinical practice? How often should treatment response be assessed?

Standard lymphoma response measures including CT and PET CT.

5.4 What factors should be considered when deciding to discontinue treatment with the drug under review?

Challenges often arise during the time of T-Cell collection and processing if the underlying lymphoma is unstable, and patients may not be fit enough to proceed with CAR-T. In such situations, the plan for CAR-T can be discontinued.

5.5 What settings are appropriate for treatment with [drug under review]? Is a specialist required to diagnose, treat, and monitor patients who might receive [drug under review]?

CAR-T cell therapy is only available in selected centers and is resource intensive.

6. Additional Information

N/A

7. Conflict of Interest Declarations

To maintain the objectivity and credibility of the CADTH drug review programs, all participants in the drug review processes must disclose any real, potential, or perceived conflicts of interest. This conflict of interest declaration is required for participation. Declarations made do not negate or preclude the use of the clinician group input. CADTH may contact your group with further questions, as needed. Please see the *Procedures for CADTH Drug Reimbursement Reviews* (section 6.3) for further details.

Did you receive help from outside your clinician group to complete this submission? If yes, please detail the help and who provided it.

OH (CCO) provided a secretariat function to the group.

Did you receive help from outside your clinician group to collect or analyze any information used in this submission? If yes, please detail the help and who provided it.

No.

List any companies or organizations that have provided your group with financial payment over the past two years AND who may have direct or indirect interest in the drug under review. **Please note that this is required for each clinician who contributed to the input — please add more tables as needed (copy and paste). It is preferred for all declarations to be included in a single document.**

Declaration for Clinician 1

Name: Dr. Tom Kouroukis
Position: OH (CCO) Hematology Cancer Drug Advisory Committee lead
Date: 11-04-2024

☒ **I hereby certify** that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 1: Conflict of Interest Declaration for Clinician 1

Company	Check appropriate dollar range*			
	$0 to $5,000	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

Declaration for Clinician 2

Name: Dr. Selay Lam
Position: OH (CCO) Hematology Cancer Drug Advisory Committee member
Date: 11-04-2024

☒ I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 2: Conflict of Interest Declaration for Clinician 2

Company	Check appropriate dollar range*			
	$0 to $5,000	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

Declaration for Clinician 3

Name: Dr. Jordan Herst
Position: OH (CCO) Hematology Cancer Drug Advisory Committee member
Date: 11-04-2024

☒ I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 3: Conflict of Interest Declaration for Clinician 3

Company	Check appropriate dollar range*			
	$0 to $5,000	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**

Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

Declaration for Clinician 4

Name: Dr. Pierre Villeneuve
Position: OH (CCO) Hematology Cancer Drug Advisory Committee member
Date: 02-05-2024

☒ I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 4: Conflict of Interest Declaration for Clinician 4

	Check appropriate dollar range*			
Company	**$0 to $5,000**	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

Declaration for Clinician 5

Name: Dr. Joanna Graczyk
Position: OH (CCO) Hematology Cancer Drug Advisory Committee member
Date: 11-04-2024

☒ I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 5: Conflict of Interest Declaration for Clinician 5

	Check appropriate dollar range*			
Company	**$0 to $5,000**	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

Declaration for Clinician 6

Name: Dr. Lee Mozessohn

Position: OH (CCO) Hematology Cancer Drug Advisory Committee member
Date: 11-04-2024

☒ I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 5: Conflict of Interest Declaration for Clinician 6

	Check appropriate dollar range*			
Company	**$0 to $5,000**	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

Declaration for Clinician 7

Name: Rami El-Sharkaway
Position: OH (CCO) Hematology Cancer Drug Advisory Committee member
Date: 11-04-2024

☒ I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 5: Conflict of Interest Declaration for Clinician 7

	Check appropriate dollar range*			
Company	**$0 to $5,000**	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

CADTH Project Number: PG0358-000
Generic Drug Name (Brand Name): lisocabtagene maraleucel (Breyanzi)
Indication: CD19-directed genetically modified autologous T cell immunotherapy indicated for the treatment of adult patients with large B-cell lymphoma, including diffuse large B-cell lymphoma (DLBCL) not otherwise specified, primary mediastinal large B-cell lymphoma (PMBCL), high grade B-cell lymphoma, and DLBCL arising from follicular lymphoma, who are refractory or have relapsed within 12 months of initial therapy and are candidates for autologous hematopoietic stem cell transplant (HSCT).
Name of Clinician Group: LLSC Nurses Network
Author of Submission: Colleen McMillan, Advocacy Lead, Leukemia & Lymphoma Society of Canada (LLSC)

1. About Your Clinician Group

LLSC Nurses Network – A group of Canadian nurses with an interest in blood cancers

2. Information Gathering

LLSC gathered input via discussions with nurses working in Canadian cancer centres, with various cancer and LBCL patient experience

3. Current Treatments and Treatment Goals

The current approach to treating patients with relapsed or refractory LBCL includes several strategies.

Typically, the initial step involves salvage chemotherapy, a rigorous treatment regimen intended to shrink or eliminate cancer cells. The goal is to achieve remission or a significant response before considering more advanced interventions such as HSCT.

In some cases, depending on the specific characteristics of the patient's lymphoma, targeted therapies may be incorporated into the treatment plan to attack specific cancer cells while minimizing harm to healthy cells, potentially enhancing the effectiveness of the overall treatment strategy.

Following salvage chemotherapy, patients who achieve a sufficient response may proceed to autologous HSCT.

The ultimate goals of treatment for R/R LBCL patients include prolonging life expectancy, slowing down progression of the disease, improving health-related quality of life, and ideally, preventing the need for further treatments.

4. Treatment Gaps (unmet needs)

4.1. Considering the treatment goals in Section 3, please describe goals (needs) that are not being met by currently available treatments.

Not all patients respond to currently available treatments, and many become refractory to them. There is a critical need for therapeutic innovations that offer improved tolerability, enhanced convenience,

reduced financial strain on patients and healthcare systems, and minimal disruption to patients' and caregivers' daily lives, ultimately enhancing overall quality of life.

Furthermore, there is a critical need for treatments with more curative potential to alleviate the need for further treatments and bypass bridging treatments, which could compromise patient fitness and eligibility for therapy in further lines due to T-cell toxicity.

CAR-T treatment offers a more curative pathway compared to current standards of care. By potentially reducing the need for additional lines of treatment, CAR-T therapy could potentially save resources while offering renewed hope to patients.

Compared to stem cell transplant, CAR-T therapy is advantageous in that patients typically experience shorter and less intense and burdensome recovery periods with CAR-T, leading to significantly improved quality of life outcomes.

In particular, focusing on patient populations relapsed within a year, and refractory to first line treatment, moving CAR-T therapy to second line could be significantly more resource-efficient.

By eliminating the steps of salvage chemotherapy and stem cell collection, CAR-T therapy streamlines the treatment process, reduces resource utilization, and potentially enhances patient outcomes, offering an effective, patient centred approach.

5. Place in Therapy

5.1. How would the drug under review fit into the current treatment paradigm?

Under the current treatment paradigm, CAR-T is typically administered as third line therapy. However, this approach may inadvertently limit the treatment’s effectiveness or the patient’s eligibility to receive CAR-T treatment at all, due to effects from prior exposure to toxic treatments, which may also potentially compromise CAR-T's curative impact.

Administering CAR-T earlier in therapy could improve response rates and maximize its curative potential, while potentially preserving opportunities for future innovative therapies, if needed. Incorporating CAR-T therapy in second line treatment could significantly alter treatment algorithms.

Second line CAR-T is desirable for certain patient populations, such as those who experience a relapse within the first year post-treatment. Those intended for stem cell transplant could especially benefit from this change in current practice. By bypassing aggressive chemotherapy protocols, which can impair T-cell function and overall patient health, we can improve the likelihood of successful CAR-T therapy.

The timing of CAR-T therapy is crucial in preserving patient’s eligibility and fitness for subsequent treatments. Patients who become too unwell after failed second-line treatments may miss the window of opportunity for CAR-T therapy, significantly impacting overall treatment efficacy and patient outcomes. Advancing CAR-T therapy to the second line of treatment represents a proactive and patient-centred approach.

5.2. Which patients would be best suited for treatment with the drug under review? Which patients would be least suitable for treatment with the drug under review?

Certain patient populations, particularly those with aggressive DLBCL such as double-hit, could benefit significantly from CAR-T therapy over stem cell transplant due to its curative potential. Patients who are identified as having a high risk of relapse with chemotherapy can greatly benefit from up front CAR-T as the next course of treatment upon becoming refractory or relapsing after first line treatment.

Patients intended for transplant, who would typically undergo treatments like GDP (gemcitabine, dexamethasone, cisplatin) and stem cell collection could also potentially benefit from second line CAR-T treatment. By intervening earlier with CAR-T, there's potential to avert the need for transplant altogether, thereby avoiding resource wastage.

The goal for this patient population is to prioritize CAR-T therapy at an earlier stage in the treatment process, bypassing bridging treatments that may inadvertently compromise patient fitness and eligibility for CAR-T in the future, due to their toxicity to T-cells.

For patients with aggressive disease and a heightened risk of relapse, CAR-T emerges as the preferred treatment option due to its potential for superior outcomes.

Although clinicians may prefer second line CAR-T for improved patient outcomes, current constraints limit second-line treatment options to stem cell transplant or salvage chemotherapy, with the expectation of subsequent CAR-T therapy at a later stage.

By introducing CAR-T therapy earlier in treatment algorithms, we can potentially improve outcomes and provide impactful care to patients facing relapsed or refractory disease.

5.3 What outcomes are used to determine whether a patient is responding to treatment in clinical practice? How often should treatment response be assessed?

Assessing the response to treatment in patients with LBCL involves a holistic, comprehensive evaluation of various aspects of patient health and wellbeing.

Clinical assessments are conducted, monitoring the patient's physical symptoms and overall condition. This includes checking complete blood count and lactate dehydrogenase (LDH) levels, which serve as key indicators of disease response. A stabilization or improvement in these markers indicates a positive response to treatment.

In addition, assessments are completed regarding patients' quality of life. Stabilization of symptoms or improvement in the severity of symptoms such as fatigue can indicate a positive response to treatment as can an improvement in the patient's ability to perform activities of daily living such as walking, working, and engaging in social interactions. Evaluating factors such as pain levels, emotional distress, social functioning, and overall satisfaction with life provides a comprehensive perspective on the effectiveness of treatment.

5.4 What factors should be considered when deciding to discontinue treatment with the drug under review?

Given its nature as a single infusion therapy, the concept of discontinuation doesn't typically apply in the context of CAR-T treatment.

However, patients can be deemed ineligible to move forward with CAR-T treatment for various reason such as: health status, potential damage to T-cells as a result of prior treatments, financial constraints, logistical challenges such as inability to travel to treatment, or patient preference.

A patient's overall health condition and the extent of T-cell impairment from previous treatments are large factors in determining the potential risks and benefits of CAR-T therapy. Financial factors such as out-of-pocket expenses can also influence the feasibility of undergoing CAR-T treatment. Additionally, logistical challenges such as transportation to specialized treatment centres may pose barriers for some patients. Ultimately, patient preference and individual circumstances must be carefully weighed alongside medical considerations when determining eligibility for CAR T therapy.

5.5 What settings are appropriate for treatment with [drug under review]? Is a specialist required to diagnose, treat, and monitor patients who might receive [drug under review]?

Patients are required to receive CAR-T therapy at a specialized facility equipped to administer and manage CAR-T treatment effectively.

Following CAR-T therapy, patients typically undergo a period of hospitalization lasting from several days, up to two weeks. During this time, they receive intensive medical care and monitoring to manage potential side effects.

After discharge from the hospital, patients transition to outpatient care while remaining within a 30-minute drive from their treatment facility. This proximity allows for close monitoring during the early phase of recovery. Over this two-week period, patients continue to receive daily monitoring to track their progress and address any emerging concerns promptly.

Once this initial monitoring period is completed, patients typically return home but continue to follow up with their own hematologists at their local community cancer centres for monitoring, evaluation of treatment response, and surveillance for any signs of adverse effects or relapse.

6. Additional Information

In summary, ideal outcomes for patients with relapsed/refractory large B-cell lymphoma (LBCL) include prolonged life and improved quality of life. CAR-T therapy, offering a potentially curative approach, could be more resource-efficient and lead to shorter recovery periods compared to HSCT.

Administering CAR-T earlier in treatment as second-line therapy could streamline processes, improve outcomes, and benefit specific patient populations by avoiding toxic chemotherapy protocols. This approach not only enhances patient and caregiver quality of life but also conserves healthcare resources.

7. Conflict of Interest Declarations

To maintain the objectivity and credibility of the CADTH drug review programs, all participants in the drug review processes must disclose any real, potential, or perceived conflicts of interest. This conflict of interest declaration is required for participation. Declarations made do not negate or preclude the use of the clinician group input. CADTH may contact your group with further questions, as needed. Please see the *Procedures for CADTH Drug Reimbursement Reviews* (section 6.3) for further details.

1. Did you receive help from outside your clinician group to complete this submission? If yes, please detail the help and who provided it.

No

2. Did you receive help from outside your clinician group to collect or analyze any information used in this submission? If yes, please detail the help and who provided it.

No

3. List any companies or organizations that have provided your group with financial payment over the past two years AND who may have direct or indirect interest in the drug under review. **Please note that this is required for <u>each clinician</u> who contributed to the input — please add more tables as needed (copy and paste). It is preferred for all declarations to be included in a single document.**

Declaration for Clinician 1

Name: Joyce McAfee MN, RN
Position: Clinical Nurse Educator / Quality Management Coordinator, CAR T
Foothills Medical Centre
Date: 07-05-2024

X **I hereby certify** that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 1: Conflict of Interest Declaration for Clinician 1

	Check appropriate dollar range*			
Company	**$0 to $5,000**	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

Declaration for Clinician 2

Name: Claudia Abreu Costa, RN, CON©
Position: Immune Effector Cell (IEC) Program Clinical Coordinator, Princess Margaret Cancer Centre
Date: 03-05-2024

X I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 2: Conflict of Interest Declaration for Clinician 2

	Check appropriate dollar range*			
Company	**$0 to $5,000**	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

Declaration for Clinician 3

Name: <Enter full name>
Position: <Enter currently held position>
Date: <DD-MM-YYYY>

☐ I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 3: Conflict of Interest Declaration for Clinician 3

	Check appropriate dollar range*			
Company	**$0 to $5,000**	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

Declaration for Clinician 4

Name: <Enter full name>
Position: <Enter currently held position>
Date: <DD-MM-YYYY>

☐ I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 4: Conflict of Interest Declaration for Clinician 4

	Check appropriate dollar range*			
Company	**$0 to $5,000**	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

Declaration for Clinician 5

Name: <Enter full name>
Position: <Enter currently held position>
Date: <DD-MM-YYYY>

☐ I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 5: Conflict of Interest Declaration for Clinician 5

	Check appropriate dollar range*			
Company	**$0 to**	**$5,001 to**	**$10,001 to $50,000**	**In excess of $50,000**

	$5,000	$10,000		
Add company name				
Add company name				
Add or remove rows as required				

* Place an X in the appropriate dollar range cells for each company.

CADTH Project Number: PG0358-000
Generic Drug Name (Brand Name): lisocabtagene maraleucel (Breyanzi)
Indication: For the treatment of adult patients with large B-cell lymphoma, including diffuse large B-cell lymphoma (DLBCL) not otherwise specified, primary mediastinal large B-cell lymphoma (PMBCL), high grade B-cell lymphoma, and DLBCL arising from follicular lymphoma, who are refractory or have relapsed within 12 months of initial therapy and are candidates for autologous hematopoietic stem cell transplant (HSCT).
Name of Clinician Group: Lymphoma Canada Clinician Group
Author of Submission: Mona Shafey, Robert Puckrin, Mahmoud Elsawy

1. About Your Clinician Group

Lymphoma Canada is a national organization dedicated to research, education, and raising awareness to benefit patients with lymphoma across Canada. (Home - Lymphoma Canada). Lymphoma Canada is the patient advocacy group that helped organize hematologists to complete this requested feedback letter.

2. Information Gathering

Published clinical trials of lisoscabtagene maraleucel and other chimeric antigen receptor (CAR) T cell products used for the treatment of relapsed or refractory large B-cell lymphoma (LBCL) in the second line setting were reviewed. In addition, we referred to pivotal clinical trials of second line treatment for LBCL including LY.12, a Canadian study of second line chemoimmunotherapy and autologous stem cell transplant (ASCT), as well as the Canadian Lymphoma Treatment Guidelines (DLBCL - Diffuse Large B Cell Lymphoma - Lymphoma Canada) and the CADTH Provisional Funding Algorithm for Large B-cell Lymphoma

3. Current Treatments and Treatment Goals

First line treatment of DLBCL for fit patients is multiagent chemotherapy with RCHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, prednisone), resulting in cure in approximately 60% of patients[1]. The remaining patients will either relapse after frontline therapy (30%) or are refractory (10%), and experience poor outcomes. At the time of this report, the only readily available salvage treatment in Canada in the second line setting is salvage chemoimmunotherapy, most commonly RGDP (rituximab, gemcitabine, dexamethasone, cisplatin), followed by ASCT in responding patients. However, based on the multicenter Canadian randomized LY12 trial, only half of the patients had sufficient response to salvage to undergo ASCT, and despite this, relapse occurred frequently among patients after ASCT, with a reported 4-year event-free survival for all patients intended for ASCT of only 26%[2]. The prognosis of patients with relapsed/refractory DLBCL has also been reported elsewhere to be dismal, with overall survival <30%.

Those who fail this strategy are now offered CAR T-cell therapy in the 3rd line (or later) setting, based on the results of the ZUMA-1, JULIET, and TRANSCEND trials, with long-term remissions in 35-45% of patients[3-5]. This therapy is available in more than 10 specialized centres across Canada. More importantly, the use of CAR T therapy in second line, specifically with axicabtagene

ciloleucel, is Health Canada approved and CADTH supported for the treatment of adult patients with relapsed or refractory B-cell lymphoma who are candidates for autologous stem cell transplant (see CADTH provisional funding algorithm). This is based on the results of the ZUMA-7 trial, which demonstrated the superiority of proceeding with second line CAR T over standard salvage chemotherapy +/- ASCT, with improved progression-free and overall survival outcomes[6]. This therapy is now considered the new standard of care in patients who fail RCHOP chemotherapy within the first year of treatment who are fit for cellular therapy. Unfortunately, this treatment is not yet readily available as we await provincial funding and support to offer this therapy for qualifying patients.

4. Treatment Gaps (unmet needs)

4.1. Considering the treatment goals in Section 3, please describe goals (needs) that are not being met by currently available treatments.

The goal of treatment in DLBCL is to prolong life by curing the patient of their lymphoma. Second line chemoimmunotherapy and ASCT is effective in a subset of patients with relapsed DLBCL, in particular those with late relapses who have chemosensitive disease. The area of unmet need are the high-risk patients, i.e. those with primary refractory disease, and those with early relapse (<12 months), with only 20% achieving durable remission with this strategy reported in the CORAL study[7]. These are the patients that are most likely to benefit from the use of CAR T-cell therapy in second line, over the current strategy of salvage chemotherapy +/- ASCT. By offering more effective therapies earlier in the disease course, more patients will be cured of their lymphoma, limiting the need for other salvage strategies (e.g. bi-specific antibody therapy).

The toxicities of CAR T-cell therapy are well known, with patients at risk for both cytokine release syndrome (CRS) and neurotoxicity (ICANS). Lisocabtagene maraleucel has consistently been shown to have less frequent CRS and ICANS as compared to axicabtagene ciloleucel, without compromising on efficacy, both in the 3rd line and 2nd line studies, as well as real world outcome studies. This would be expected to translate into less frequent high-grade complications, less need for ICU care, shorter hospitalizations, and the possibility of delivery in an outpatient setting. Given the nature of the current clinical environment, having access to a second CAR T product that could decrease hospitalization and complications is a clear advantage.

5. Place in Therapy

5.1. How would the drug under review fit into the current treatment paradigm?

The TRANSFORM study compared lisocabtagene maraleucel with standard of care (SOC) as second line therapy for primary refractory or early relapsed (≤12 months) large B-cell lymphoma[8]. Adult patients eligible for ASCT received either liso-cel or SOC (3 cycles of platinum-based immunochemotherapy followed by high-dose chemotherapy and ASCT in responders). In the primary analysis with 17.5 months of follow-up, there was significant improvement in EFS, CR rate, and PFS for liso-cel compared with SOC, supporting liso-cel as a preferred second-line treatment compared with SOC in this patient population.

Using the current CADTH provisional funding algorithm for large B-cell lymphoma, lisocabtagene maraleucel would be placed in the second line setting, under “transplant-eligible”, alongside axicabtagene ciloleucel, for the same high risk population of patients with primary refractory disease or those with relapse <12 months of frontline chemoimmunotherapy. The current placement in the third line setting would remain, for those patients who have relapsed disease not previously treated with CAR T therapy who are fit to receive this therapy.

5.2. Which patients would be best suited for treatment with the drug under review? Which patients would be least suitable for treatment with the drug under review?

The patients most likely to benefit from this therapy over salvage chemotherapy and ASCT are those with high risk disease, i.e. patients with primary refractory disease and those who relapse within 12 months of first line therapy. Patients with low burden disease (i.e. low tumor volume, normal LDH) and those that respond to bridging therapy while awaiting manufacturing are known to have better outcomes with this therapy, but these are not requirements to undergo this treatment, as there are no predictors to accurately identify patients who will not exhibit a response. Liso-cel has also been studied in older patients and those with moderate comorbidities and is a particularly attractive product for these populations given its favorable safety profile. Patients with other subtypes of DLBCL would benefit from 2L liso-cel in addition to the histologies mentioned in the submission indication (DLBCL NOS, PMBCL, tFL, HGBCL).

The patients to be considered for this treatment will be readily identified by their primary hematologist/oncologist, as is currently done when patients are considered for salvage therapy and ASCT. Fitness for this treatment (i.e. transplant-eligibility) will rely on standard institutional guidelines that include adequate performance status, adequate vital organ function, sufficient clinical stability to be expected to tolerate the 3-4 weeks manufacturing period, and no prior CD19-directed CAR T therapy.

5.3 What outcomes are used to determine whether a patient is responding to treatment in clinical practice? How often should treatment response be assessed?

The outcomes used in clinical practice and clinical trials to determine response to CAR-T cell therapy include overall response rate, complete response rate, progression-free survival, and overall survival. Standard Lugano criteria for lymphoma is used to confirm remission status. Response assessment varies according to institutional guidelines and may include restaging CT or PET/CT scans at 1 month, 3 months, and 6 months after CAR-T cell infusion. The majority of patients with ongoing responses 6-12 months after CAR-T cell therapy will achieve long-lasting remissions.

5.4 What factors should be considered when deciding to discontinue treatment with the drug under review?

Lisocabtagene maraleucel is a one-time infusion of a cellular therapy product. A decision not to proceed with infusion after manufacturing has taken place is a clinical one that is patient-specific, and usually due to rapidly progressive disease with organ failure that precludes the ability to tolerate treatment. This situation was reported as low (<5%) in the second line setting.

5.5 What settings are appropriate for treatment with [drug under review]? Is a specialist required to diagnose, treat, and monitor patients who might receive [drug under review]?

Lisocabtagene maraleucel, like all other CAR T therapy products approved for use in Canada, should only be administered in established CAR T therapy programs approved to deliver this therapy, of which there are now over 10 adult programs across the country. These specialized centres must include a certified laboratory for handling cellular therapy products, hematologists/oncologists with expertise in cellular therapy to monitor and manage adverse events occurring after CAR-T cell infusion, including cytokine release syndrome, neurotoxicity, cytopenias, infections, and hypogammaglobulinemia, and access to subspecialists (e.g. ICU, neurology, infectious disease, etc.) to assist in the management of serious adverse events.

6. Additional Information

The indication includes the specification that the patients be candidates for autologous stem cell transplantation. There is growing evidence that CAR T cell therapy has a different and more favorable toxicity profile over autologous stem cell transplant, and thus there is a small proportion (<10%) of patients that would be fit for CAR T therapy, but not necessarily autologous stem cell transplant due to the expected toxicities of both therapies. A patient's fitness for cellular therapy should be assessed on an individual basis, and although there are guidelines for fitness for transplant, very few of these are absolute contraindications, most often those related to the high dose conditioning regimen itself, which would not be given to a patient with CAR T. Thus fitness for ASCT should not necessarily be used to define fitness for CAR T-cell therapy in practice.

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8. Abramson JS et al. Lisocabtagene maraleucel as second-line therpay for large B-cell lymphoma: primary analysis of the phase 3 TRANSFORM study. Blood 2023 141:1675-84

7. Conflict of Interest Declarations

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No

2. Did you receive help from outside your clinician group to collect or analyze any information used in this submission? If yes, please detail the help and who provided it.

No

3. List any companies or organizations that have provided your group with financial payment over the past two years AND who may have direct or indirect interest in the drug under review. **Please note that this is required for <u>each clinician</u> who contributed**

to the input — please add more tables as needed (copy and paste). It is preferred for all declarations to be included in a single document.

9. Declaration for Clinician 1

Name: Mona Shafey
Position: Clinical Associate Professor, Division of Hematology & Hematologic Malignancies, University of Calgary
Date: 8-May-2024

☒ **I hereby certify** that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 1: Conflict of Interest Declaration for Clinician 1

	Check appropriate dollar range*			
Company	**$0 to $5,000**	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
BMS	X			
Kite/Gilead	X			
AbbVie	X			

* Place an X in the appropriate dollar range cells for each company.

10. Declaration for Clinician 2

Name: Robert Puckrin
Position: Hematologist, Tom Baker Cancer Centre, University of Calgary Date: 13-May-2024

☒ I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 2: Conflict of Interest Declaration for Clinician 2

	Check appropriate dollar range*			
Company	**$0 to $5,000**	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
Kite Gilead	X			
Incyte Biosciences	X			
Beigene		X		
AstraZeneca	X			
Seagen	X			

Johnson and Johnson	X			

* Place an X in the appropriate dollar range cells for each company.

11. Declaration for Clinician 3

Name: Mahmoud Elsawy
Position: Assistant Professor, Division of Hematology and Hematologic Oncology, Dalhousie University
Date: 20-05-2024

☒ I hereby certify that I have the authority to disclose all relevant information with respect to any matter involving this clinician or clinician group with a company, organization, or entity that may place this clinician or clinician group in a real, potential, or perceived conflict of interest situation.

Table 2: Conflict of Interest Declaration for Clinician 3

	Check appropriate dollar range*			
Company	**$0 to $5,000**	**$5,001 to $10,000**	**$10,001 to $50,000**	**In excess of $50,000**
BMS	X			
Kite/Gilead		X		
Abbvie	X			

* Place an X in the appropriate dollar range cells for each company.