Section 1 — General Information

Name of the drug CADTH is reviewing and indication(s) of interest		Canakinumab (Ilaris) – Systemic Juvenile Idiopathic Arthritis (SJIA)
Name of the patient group		Canadian Arthritis Patient Alliance (CAPA)
Name of the primary contact for this submission:		Laurie Proulx
Position or title with patient group		Vice-President
Email		Laurie.proulx@arthritispatient.ca
Telephone number(s)		
Name of author (if different)		
Patient group's contact information:	Email	contact@arthritispatient.ca
	Telephone	
	Address	204 Gerrard Street East, Unit 3, Toronto, ON M5A 2E6
	Website	www.arthritispatient.ca
Permission is granted to post this submission		X Yes ☐ No

CADTH will post this patient input submission on its website if permission is granted. See CDR Update — Issue 99 for details.

- This template form is to be used by patient groups to submit patient group input.
- Individual patients should contact a patient group that is representative of their condition to have their input added to that of the patient group.
- Please ensure that the input is in English, and that it is succinct and clear and in a ready-to-publish format.
- Please use a minimum 11-point font and do not exceed six-typed pages (approximately 3,500 words). You may delete the instructions and examples under each heading for more space.
- Patient input submissions must be provided as a Word document.
- Use the "Submit" link in the table on the Patient Input page to file the submission.
- The patient group input for this drug must be submitted by the deadline date posted on the Patient Input page of the CADTH website to be used in the CDR process.
- Privacy: The information provided in submissions to CADTH will be shared with reviewers, the Canadian Drug Expert Committee (CDEC), publicly funded drug plans that participate in the CDR, and may be included in publicly available documents. All patient input submissions for a drug under review will be collated and summarized in one document that will be posted as part of the CDR Clinical Review Report. All patient input submissions for which permission to post has been granted will be posted in their entirety on the CADTH website. Personal information will not be publicly available.

Should you have any questions about completing this form, please contact CADTH by telephone at 613-226-2553 or email requests@cadth.ca.

For information about the CDR process and CDEC see the CDR section on the CADTH website; for information regarding patient input to CDR and CDEC, see the Patient Input section.

1.1 Submitting Organization

Please provide an overview of the organization that is making the submission, including the purpose or aim(s) of the organization and an outline of the type of membership.

CAPA is a grass-roots, patient-driven, independent, national education and advocacy organization with members and supporters across Canada. CAPA creates links between Canadians with arthritis, assists them to become more effective advocates and seeks to improve the quality of life of all people living with the disease. CAPA believes the first expert on arthritis is the individual who has the disease, as theirs is a unique perspective. We assist members to become advocates not only for themselves but all people with arthritis. CAPA welcomes all Canadians with arthritis and those who support CAPA's goals to become members.

1.2 Conflict of Interest Declarations

CADTH requires that all participants in the CDR process disclose any conflicts of interest to ensure that the objectivity and credibility of the CDR process is maintained. Patient groups must declare any potential conflicts of interest that may influence or have the appearance of influencing the information submitted. This information is requested for transparency — a declaration of conflict of interest does not negate or preclude the use of the patient input.

(Examples of conflicts of interest include, but are not limited to, financial support from the pharmaceutical industry [e.g., educational or research grants, honorariums, gifts, and salary], as well as affiliations or personal or commercial relationships with drug manufacturers or other interest groups.) The names of all manufacturers providing funding should be listed, not just the manufacturer of the drug under review.

a) *We have the following declaration(s) of conflict of interest in respect of corporate members and joint working, sponsorship, or funding arrangements:*

Sources of grants and support received by CAPA in the last year include: AbbVie, Amgen Canada, Arthritis Alliance of Canada, The Arthritis Society, Canadian Rheumatology Association, Hoffman-LaRoche, Janssen, Novartis, Ontario Rheumatology Association, Pfizer Canada, Rx&D and UCB Pharma. Additionally, CAPA has also received support in the past from: Canadian Institutes for Health Research, Schering Canada, Scleroderma Society, and STA Communications.

b) *We have the following declaration(s) of conflict of interest in respect of those playing a significant role in compiling this submission:*

The author of this submission received honoraria from Sanofi in 2015.

Section 2 — Condition and Current Therapy Information

In each of the following sections, guidance or examples are provided to help identify the type of information that CADTH, CDEC, and participating drug plans will find most helpful in understanding the needs and preferences of the majority of patients. Objective, experiential information that is

representative of the majority of the patient group is preferred. There is no need for patient groups to submit published information, as CADTH's CDR review team and CDEC have access to current scientific literature through the manufacturer's submission and a rigorous, independent literature search. However, relevant unpublished studies may be submitted in addition to the completed template.

2.1 Information Gathering

Please briefly identify how the information to complete Section 2 was obtained. Was it obtained, for example, through personal experience, focus groups, one-to-one conversations with a number of patients using the current therapy, printed sources, etc.?

The author of this submission was originally diagnosed with Juvenile Idiopathic Arthritis therefore these personal experiences were considered in the development of this submission. We had one-on-one conversations with another adult who was initially diagnosed with Juvenile Idiopathic Arthritis (JIA) as well as a parent of a child living with Juvenile Idiopathic Arthritis. More information was obtained through personal experiences of the Board of Directors of the Canadian Arthritis Patient Alliance in living with inflammatory arthritis.

2.2 Impact of Condition on Patients

What are the condition-related symptoms and problems that impact the patients' day-to-day life and quality of life? Examples of the type of information that could be included are:

- What aspects of this condition are more important to control than others?
- How does this condition affect day-to-day life?
- Are there activities that the patients are unable to do as a result of the condition?

Systemic Juvenile Idiopathic Arthritis (SJIA) is a serious, disabling autoimmune disease that attacks the joint lining, resulting in the destruction of the joint and surrounding bone. The impact of chronic inflammation on a growing joint is significant. Joints can literally grow around the inflammation causing abnormal shape and function as the child grows. Joint damage is irreversible and causes significant pain and disability. SJIA is a systemic disease that can also cause rashes and involve(s) other internal organs, such as the heart, liver, spleen and lymph nodes. Children who have SJIA get recurrent fevers (often spiking once to twice per day) as their body tries to deal with the disease which leaves them feeling very tired and unwell. When diagnosed as a child, one can expect to live with the disease for the rest of their lives.

Without control of the disease, major joint surgeries such as joint replacement or fusions can be required at a young age and possibly lead to multiple procedures throughout the life span. For example, one patient reported having both knees and hips replaced at 13 years of age, a time at which those joints had not completed their growth and is likely to need further surgery as growth continues and the disease is not controlled. Because of the extensive damage to their joints, some patients who do not respond to the available treatments might also have to use technical or mobility aids such has bath lifts, canes or wheelchairs, have their house/car adapted and rely on para-transit to do daily activities.

Unique complications associated with SJIA include growth retardation which can be caused by the disease itself or the use of corticosteroids. Research has shown and it is now common knowledge that newly diagnosed patients should be actively treated early in the disease to avoid irreversible joint damage, control pain and improve overall quality of life for the patient.

When the disease is not controlled, patients endure severe inflammation, pain and fatigue. Patients learn at a young age to live with the unpredictability of the disease and how the disease will change moment to moment, day to day and year to year. It affects every aspect of a patients' day-to-day life including sleep, self-care, walking, participation in school, the ability to concentrate and participate in social activities and the ability to pursue hobbies and interests. The disease can become a serious physical and psychological burden for children and youth when this is the time in their lives when they would normally be focused on fun, school, making friends and discovering who they are as individuals.

2.3 Patients' Experiences With Current Therapy

How well are patients managing their condition with currently available treatments?
Examples of the types of information that might be included are:

- What therapy are patients using for this condition?
- How effective is the current therapy in controlling the common aspects of this condition?

- Are there adverse effects that are more difficult to tolerate than others?
- Are there hardships in accessing current therapy?
- Are there needs, experienced by some or many patients, which are not being met by current therapy? What are these needs?

It is the general consensus that early aggressive treatment of the disease provides the best long-term outcomes for children and youth with SJIA. A number of treatment approaches are used to treat SJIA including Non-steroidal anti-inflammatory drugs (NSAIDS), corticosteroids and disease modifying anti-rheumatic drugs (DMARDS) such as Methotrexate, Anakinra and Tocilizumab.

It is important to note medications that inhibit Interleukin-1 and Interleukin-6 have been shown to be more beneficial to patients living with Systemic JIA. Canakinumab is a medication that specifically targets Interleukin-1 therefore the introduction of this medication provides an additional option for patients living with the disease. Currently, there are only two medications that target the IL-1 or IL-6 pathway thereby limiting patient options. It is also important to note of the two medications which target the IL-1 or IL-6 pathway, only ONE has been fully studied and specifically approved for use in the pediatric population.

Notwithstanding this fact, patients' response to medication can vary significantly. Some are effective for some while not effective for others. Some treatments will only manage the disease for a short period of time before the patients' immune system adapts to a drug presence (i.e. becomes non-responsive to it) and they will have to switch to another medication. In some cases, patients with SJIA may not adequately respond to any of the biologics currently available. As a result, patients need a number of medication options in order to effectively manage their disease throughout their lives.

Effective treatments mean that children and youth with JIA do not need to live with the permanent damage, high medical costs (e.g. surgery, mobility aids, accessible housing) and disability. This is particularly important for children and youth living with SJIA who have a lifetime ahead of them. As such, early intervention is an absolute necessity in order to allow them the ability to fully participate in all aspects of life. This includes participation in school, finding a suitable career and employment, becoming a parent (if they desire), etc.

While side effects of existing treatments may vary, they can include: nausea and vomiting, extreme fatigue, decreased immune function (as current medications are immuno-suppressants), injection reactions, and for biologics, auto-immunity is often developed to treatments after prolonged exposure. Canakinumab has similar side effects and mode of administration as currently available treatment options.

2.4 Impact on Caregivers

What challenges do caregivers face in caring for patients with this condition? What impact do treatments have on the caregivers' daily routine or lifestyle? Are there challenges in dealing with adverse effects related to the current therapy?

Parents are the primary caregiver of children and youth living with SJIA. They feel additional stress as a result of caring for an ill child and adapting family and patient activities based on the disability. This includes attending extra medical appointments (e.g. specialists, allied health care professionals), managing medications on a day to day basis, dealing with flares in the disease, etc. The parent(s) also need to manage this in addition to the current responsibilities in life, such as work and caring for other children.

A child with SJIA, the parents, or the child's siblings may sometimes feel guilty about what has happened. Other times, a sibling may resent the extra attention a child with SJIA gets from his or her parents. Caring of a sick child may also impact the relationship with a spouse. The parents are also at risk of depression and marital stress as a result of living with these additional responsibilities.

New treatment options have the potential to ease the burden on patients' families, caregivers and the healthcare system.

Section 3 — Information about the Drug Being Reviewed

In this section, guidance or examples are provided to help identify the type of information that CDR, CDEC, and participating drug plans will find most helpful in understanding the needs and preferences of the majority of patients. Objective, experiential information that is representative of most in the patient group is preferred. There is no need for patient groups to submit published information, as CDR and CDEC have access to current scientific literature through the manufacturer's submission and a rigorous, independent literature search. However, relevant unpublished studies may be submitted in addition to the completed template.

3.1 Information Gathering

Please briefly identify how the information to complete Section 3 was obtained. Was it obtained, for example, through personal experience, focus groups, one-to-one conversations with a number of patients using current therapy, printed sources, etc.?

The author of this submission was originally diagnosed with Juvenile Idiopathic Arthritis therefore these personal experiences were considered in the development of this submission. We had one-on-one conversations with another adult who was initially diagnosed with Juvenile Idiopathic Arthritis (JIA) as well as a parent of a child living with Juvenile Idiopathic Arthritis. More information was obtained through personal experiences of the Board of the Canadian Arthritis Patient Alliance in living with inflammatory arthritis.

3.2 What Are the Expectations for the New Drug or What Experiences Have Patients Had With the New Drug?

a) Based on no experience using the drug:

- Is it expected that the lives of patients will be improved by this new drug, and how?
- Is there a particular gap or unmet patient need in current therapy that this drug will help alleviate?

- Would patients be willing to experience serious adverse effects with the new therapy if they experienced other benefits from the drug?
- How much improvement in the condition would be considered adequate? What other benefits might this drug have — for example, fewer hospital visits or less time off work?

Significant strides in treatment have been made in the last 15-20 years and it is expected that Canakinumab will provide patients with SJIA with another option to manage the disease. Not everyone responds to the biologics currently on the market and if they do, their effectiveness wanes over time. For example, one patient with JIA was able to take Enbrel with effective disease control for five years while another patient was able to take Enbrel (though at higher than approved doses) for 10 years. The process of trial and error then began for these two patients to find an effective medication to control the progression of the disease.

It is important to note medications that inhibit Interleukin-1 and Interleukin-6 have been shown to be more beneficial to patients living with Systemic JIA. Canakinumab is a medication that specifically targets Interleukin-1 therefore the introduction of this medication provides an additional option for patients living with the disease. Currently, there are only two medications that target the IL-1 or IL-6 pathway thereby limiting patient options. It is also important to note of the two medications which target the IL-1 or IL-6 pathway, only ONE has been fully studied and specifically approved for use in the pediatric population.

The expectations of the drug are to offer another treatment options for patients with SJIA. The current risk-benefit profile of Canakinumab is similar to that of other medications available to treat SJIA (e.g. serious infections, allergic reaction). New treatment options have the potential to ease the burden on patients' families, caregivers and the healthcare system.

b) *Based on patients' experiences with the new drug as part of a clinical trial or through a manufacturer's compassionate supply:*
   - What positive and negative effects does the new drug have on the condition?
   - Which symptoms does the new drug manage better than the existing therapy and which ones does it manage less effectively?
   - Does the new drug cause adverse effects?
   - Which adverse effects are acceptable and which ones are not?
   - Is the new drug easier to use?
   - How is the new drug expected to change a patient's long-term health and well-being?

   Not applicable.

Section 4 — Additional Information

Please provide any additional information that would be helpful to CADTH, CDEC, and participating drug plans. This could include suggestions for improving the patient input process, indicating whether the questions are clear, etc.

We are pleased to see that Canakinumab has been properly tested in the pediatric population. Unfortunately, the appropriate study of medications in the pediatric population is not always undertaken by pharmaceutical companies and means that medications are often prescribed off-label.