1. Background of research
Injury to the nervous system arising from bone compression in cancer, diabetes, infection, autoimmune disease or physical injury results in debilitating chronic pain states (referred to as neuropathic pain) that affects about 20 million people worldwide. Effective therapy for pain induced by nerve injury is lacking and the underlying mechanisms are poorly understood.

2. Research objectives
The aim of the present study is to unravel the molecular and cellular basis for the development and maintenance of chronic pain caused by nerve injury and to lead to new strategies that may aid in the diagnosis and management of chronic pain.

3. Research characteristics (incl. originality and creativity)
We have previously discovered that microglia, immune cells that reside in the brain and spinal cord, have a causal role in nerve injury-induced chronic pain. Recently, we identified that IRF8, a member of IRF transcription factor family, is expressed in microglia. Thus, in the present study, we will investigate the role of IRF8 in chronic pain using animal models of nerve injury-induced pain and will provide new mechanism for the development and maintenance of chronic pain.

4. Anticipated effects and future applications of research
It will be expected that the results of the present study lead to new strategies for developing tools for diagnosis and management of chronic pain. Individuals suffering from chronic pain may be so grossly incapacitated as to be completely incapable of pursuing any normal activities, and therefore chronic pain also causes adverse effects on the society and economy. Thus, by uncovering the underlying mechanisms for chronic pain, our study may contribute to solving these problems and to realizing the lively, healthy society.
The aim of this study is to elucidate the mechanisms underlying chronic pain by focusing on the role of IRF8 transcription factor in microglia.