

Consumer summary

Spondyloarthropathy (SpA) is a family of diseases, which include ankylosing spondylitis, psoriatic arthritis, and reactive arthritis that usually affect the spine and the large joints of the arms and legs. It has also been associated with inflammation in the eyes, skin and intestines, representing a major burden for patients. Current treatments aim to relieve pain and stiffness, prevent or delay disease progression and additional complications and spinal deformity. Treatment is lifelong. Biologic disease-modifying drugs, such as tumor necrosis factor (TNF) blockers or interleukin (IL)-17 inhibitors do not suppress all symptoms. Patients may have to stop therapy due to adverse events or loss of efficacy. Since AS has no cure, there is an urgent need for new therapeutic options for this important healthcare issue. Treating the cause of the disease rather than the symptoms would be a major advance in patient care.

Similar to patients with inflammatory bowel disease, more than half of SpA patients have intestinal inflammation and increased permeability. Clinical observations and animal studies in other forms of arthritis suggest that this permeability could facilitate leakage of bacteria and other microbes normally residing in gut to the circulation, and then possibly to sites of inflammation such as joints, eyes and skin. This is however an unresolved question, especially in SpA. Using a mouse model of SpA where a single gut bacterium is introduced, we showed that this gut-derived bacterium can be carried by immune cells to the joints and there drive arthritis. Overall, this confirms the link between the gut and the development of arthritis, which opens exciting new opportunities to develop curative strategies to enhance gut health and control harmful bacteria. How gut bacteria in the joint activate arthritogenic inflammation is still unknown but is the subject of this continuing project in Prof. Thomas laboratory, in order to get closer to developing novel antigen-specific immunotherapy for SpA.