

TPHOR



Business area

Discovery

Market sector

Traumatology,
rheumatology,
musculoskeletal pathology

Medical Indication

Heterotopic ossification,
abnormal bone growth

Research goal

To avoid abnormal bone growth

Problem to solve

Abnormal bone growth is a pathological condition that occurs in soft tissues (heterotopic ossification (HO)) or on the surface of the bone (osteophytes and/or syndesmophytes) and implies pain, neurological issues, and a great decrease in the quality of patients' life.

HO occurs after surgery, trauma, or neurological injuries. In the case of total hip arthroplasty, or a severe fracture of the long bones of the leg, one third of the patients will develop HO. Moreover, between 50% and 90% of the patients who developed heterotopic ossification following a previous hip arthroplasty will develop additional heterotopic ossification. Genetic variables of this disease are less frequent, but their impact on patient's life is higher.

Osteophytes are bony projections formed in joint margins, commonly in the onset of arthritis. Syndesmophytes growth inside a ligament, frequently in the spine, (leading to vertebrae fusion) often after back surgery or chronic stresses on the spine ligaments.

Innovation

This new technology offers a disruptive approach to the blockade of the abnormal bone growth, through the inhibition of osteoblast differentiation and the promotion of the adipogenic one, which are opposing mechanisms. This can be implemented in clinical practice individually or in combination with current therapies. Currently there is no effective and non-aggressive treatments for these diseases. The use of bisphosphonates as prophylactics lacks evidence, surgical removal depends on certain factors, and radiotherapy is considered an aggressive and non-specific treatment. Certain anti-inflammatory drugs have shown some effect in preventing HO. Nevertheless, these last medications to prevent HO only show partial results. Therefore, finding an effective and non-aggressive treatment to prevent the formation of heterotopic bone is a medical need, and our therapy accomplish these requisites.

Market opportunity

The global market of hip/knee arthroplasty was valued at \$13.83bn in 2015, and is expected to grow through the 2013-2022 forecast period (annual growth rate Composite (CAGR) of 2.8%). The market of musculoskeletal diseases will grow progressively at an annual compound rate of almost 5.5%. The global market for musculoskeletal drugs is expected to reach more than \$ 165 billion by 2020. In addition to these data, osteophytes and syndesmophytes pharmacological approach is an unexplored niche market

Research team

Musculoskeletal Pathology Research Group of the Health Research Institute of Santiago de Compostela (IDIS).

- Principal Investigator: **Rodolfo Gómez Bahamonde**

Intellectual property

EP19382094 "Thiazolidinediones for use in the prevention or treatment of abnormal bone growth"

Development stage:



Available for: *Licensing, co-development*