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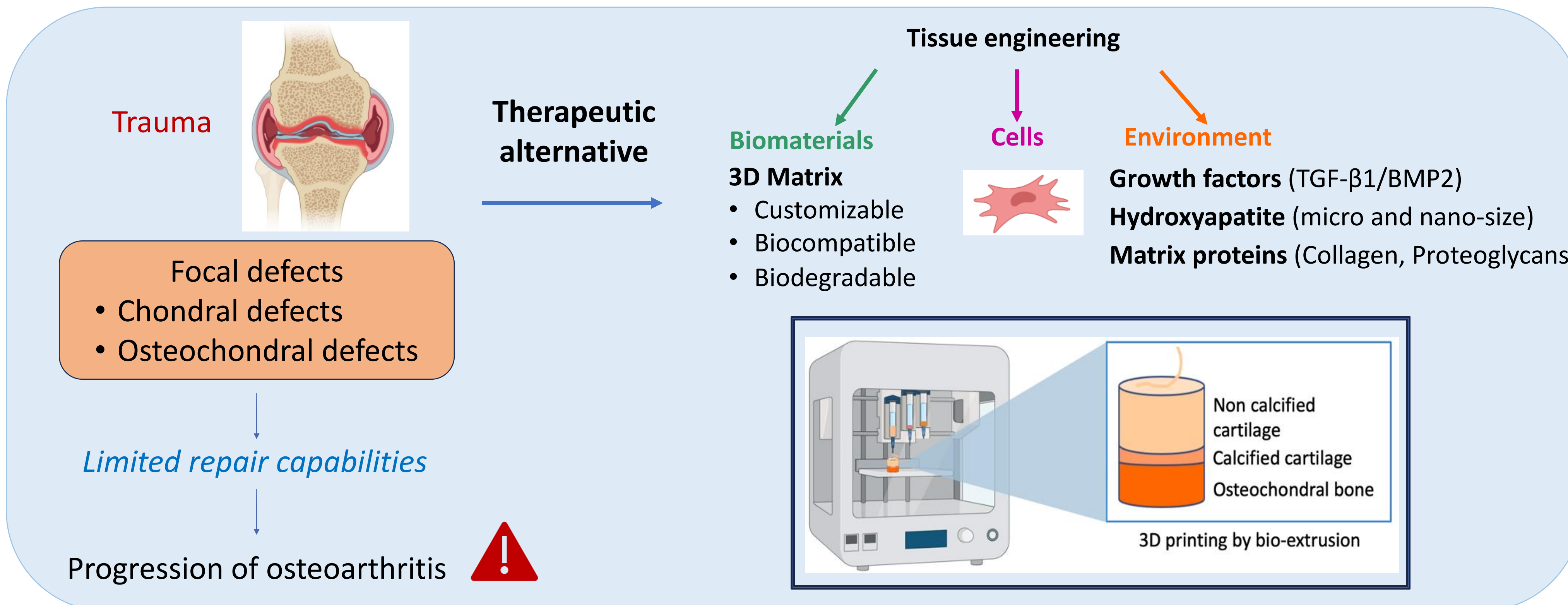
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Characterization of the osteochondral junction for the development of bio-inks dedicated to the reproduction of this anchoring zone in the treatment of focal osteochondral lesions by tissue engineering

Ghita Sekkat¹, Christel Henrionnet¹, Astrid Pinzano¹, Magali Detz¹, Pierre Gillet¹, Christophe Marquette³, Laurent Galois^{1,2} and Laurent Grossin¹

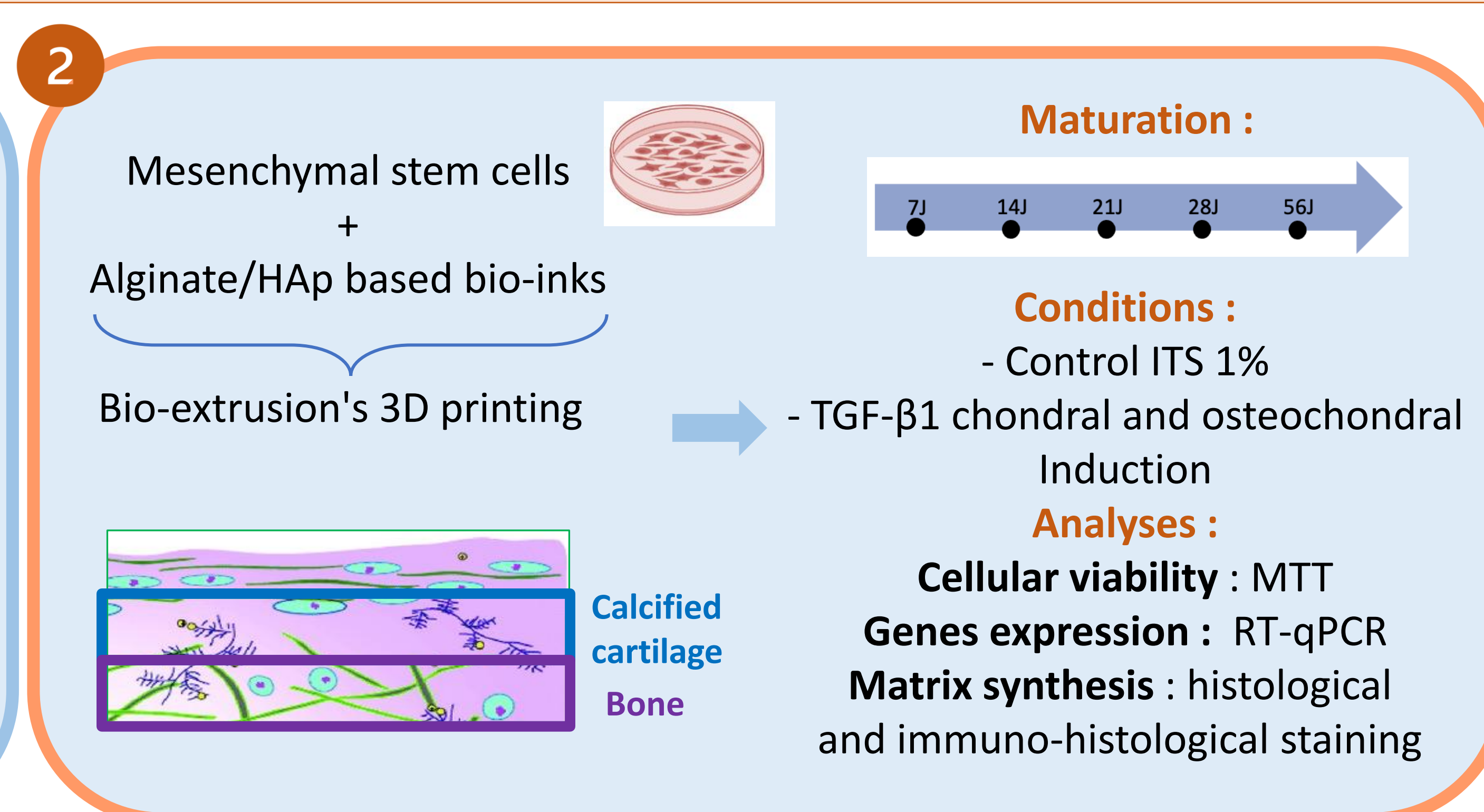
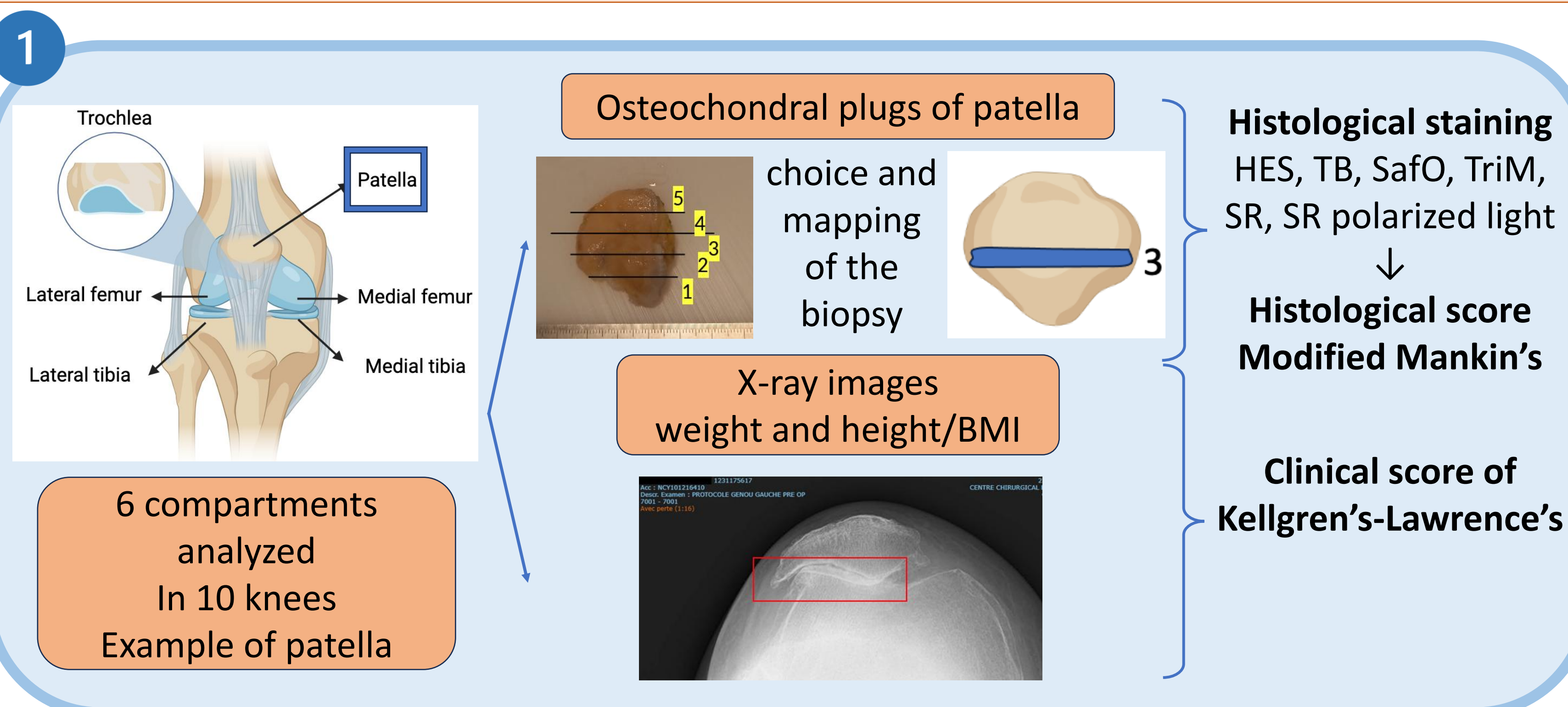
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CONTEXT AND AIMS

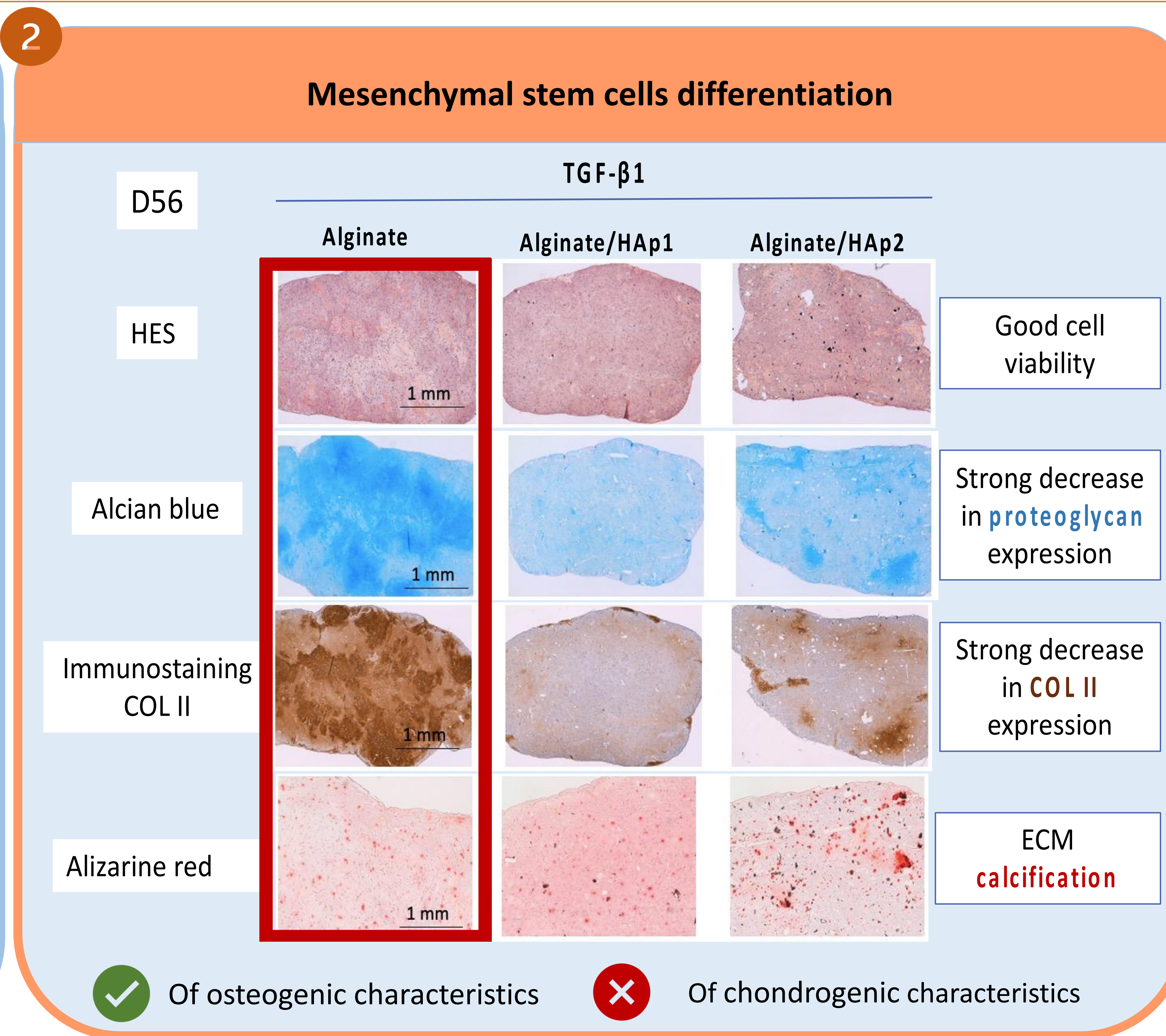
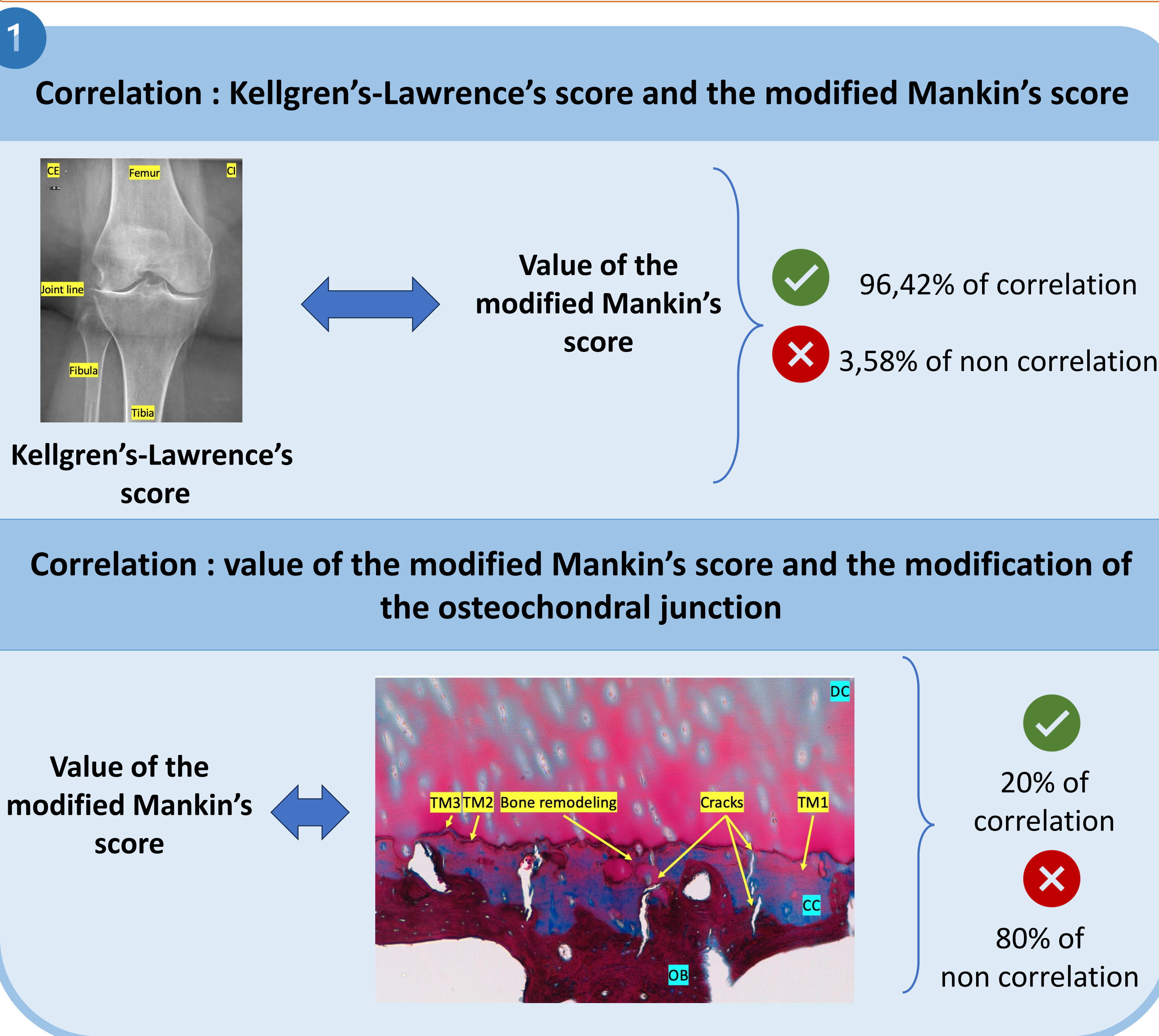


One of the pitfalls encountered remains the difficulty of reproducing a full implant considering this tissue's composition and architecture, comprising non-calcified cartilage, calcified cartilage, and subchondral bone plate. Newly developed implants must integrate the complexity of the native tissue and the pivot zone with the subchondral bone to promote successful grafting in the treatment of focal osteochondral lesions

METHODS



RESULTS



CONCLUSIONS

The modified Mankin's score provides some evidence that the organization of the cartilage and subchondral bone does not correlate with the pathological evolution of OJ. However, a correlation is evident between the Kellgren-Lawrence score and the modified Mankin's score

In the context of reproducing the subchondral bone plate-calcified cartilage junction zone, the results indicate that a detailed analysis of OJ is required to design bio-inks to produce a suitable anchoring zone for treating focal osteochondral defects

The bio-inks that we developed induced a significant reduction in cartilage markers and a matrix calcification, which means that the biological behavior of the resident cells differs depending on the customization of our matrix, this will allow us to produce the multilayer scaffold and allow its maturation under the same induction unique