

# SCIENTIFIC SEMINAR



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Polymat

### *Form Follows Function vs Function Follows form: a shift in tissue regeneration*

Tissue Engineering emerged in the early 90's on the basis of fabricating designer biomaterial scaffolds to guide cell attachment, distribution, differentiation and the deposition of an extra cellular matrix (ECM) characteristic of the targeted tissue. Cells are capable of sensing characteristics such as patterned (bio)chemical, topographical and mechanical cues over their microenvironment. Thus, under the form follows function approach, the field has been largely focused on the development of sophisticated hierarchical scaffolds that can replicate the cues present on the native environment from the molecular to the macroscopic scale.

The low practicality of this approach and the difficulties to translate the generated scaffolds to clinical environments have pushed the field to slowly shift to other approaches based on the stimulation of cells mimicking their function in the body. The function follows form approach is centered on the application of mechanical, sonic, magnetic, electrical or chemical stimuli to biomaterial scaffolds that are then translated to cells.

We will review these two concepts highlighting a series of combined scaffold biofabrication approaches (3D printing, electrospinning, self-assembly, etc) that lead to the fine control of the cell microenvironment, as well as the development of smart materials responsive to external sonic and magnetic fields and their implication in tissue regeneration.

**CIC**bioGUNE

MEMBER OF BASQUE RESEARCH  
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**ikerbasque**

Basque Foundation for Science

Thursday  
February 29  
Atrio 800  
12.00H



**BRTA**

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