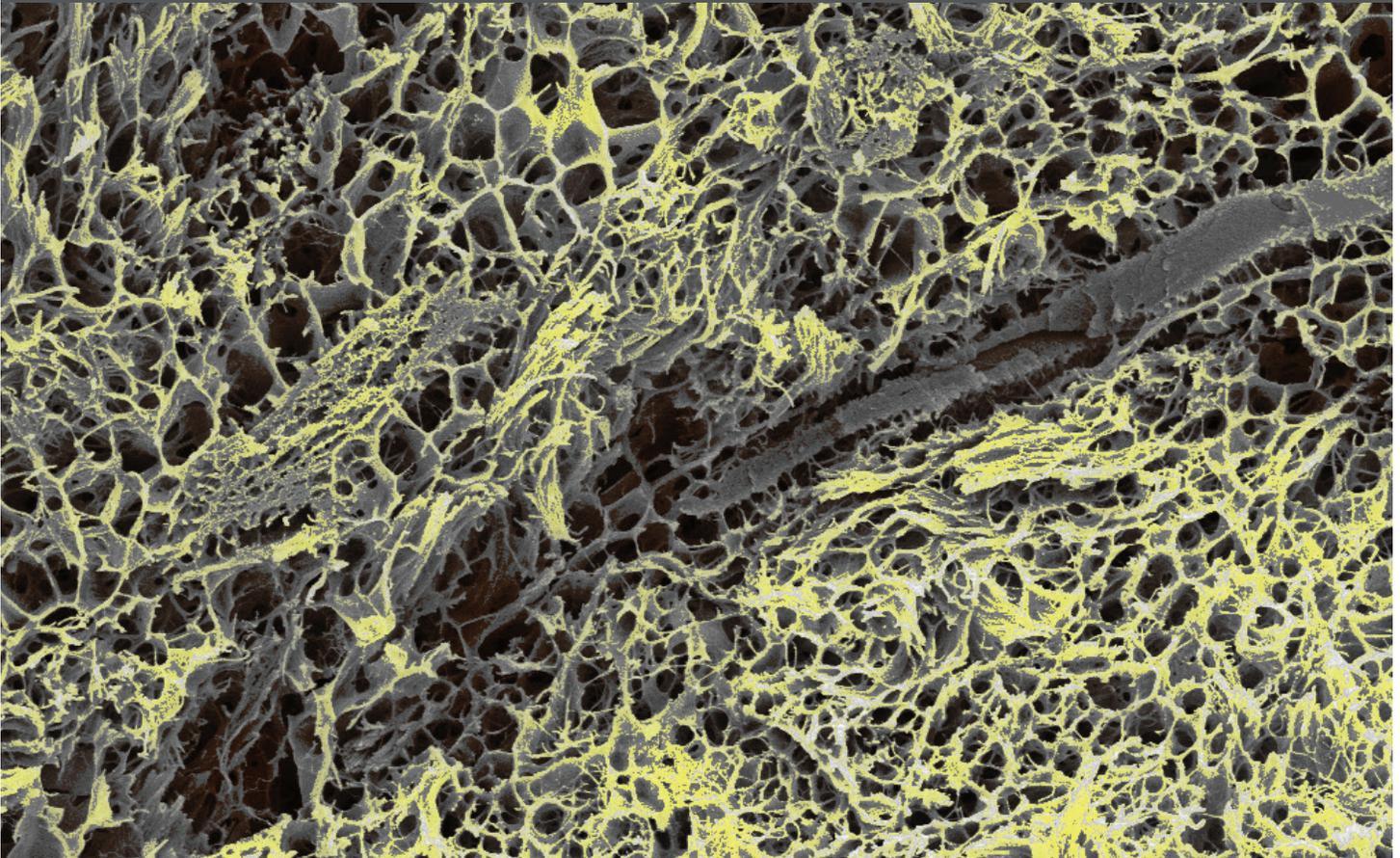


# Tissue Extracellular Matrix (ECM)



## ECM Key Learnings

- Present in all tissues and functions as the biological scaffold for cells
- Contains structural, adhesion and signalling molecules
- Tissue function and healing are dependent on the ECM
- The ECM is damaged or missing in wounds
- ECM is not a bystander during healing, but actively scaffolds and directs cells
- Wound healing can be augmented by replacing the missing or damaged ECM

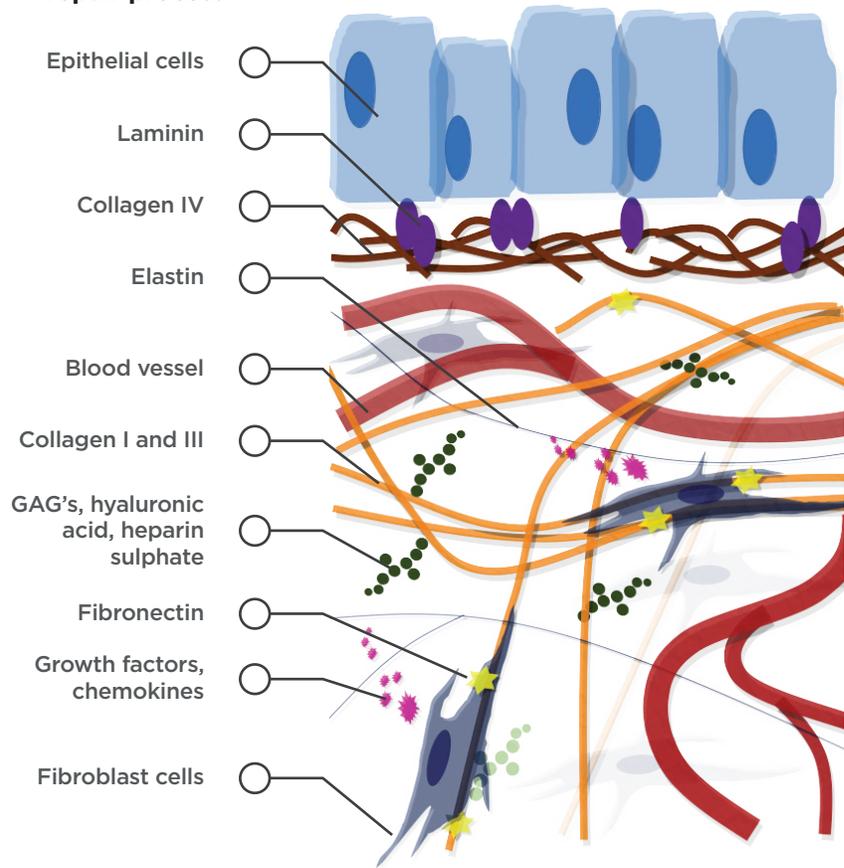
# TISSUE EXTRACELLULAR MATRIX

## The essential tissue network

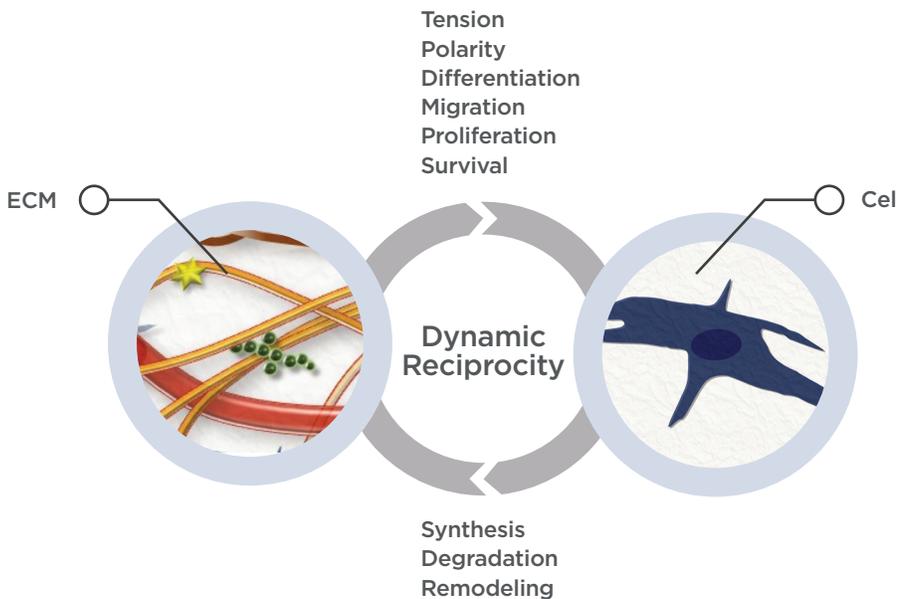
The extracellular matrix (ECM) is the material found around and between cells binding them together, and is made up mostly of collagen along with other proteins.<sup>[1, 2]</sup>

The ECM provides a structural scaffold to the body's tissues and organs, such as the skin, and is a critical platform for ongoing, dynamic and reciprocal communication and signalling between cells.<sup>[1, 3]</sup>

## ECM is essential to the health of tissues and to the tissue repair process



## Dynamic Reciprocity - the interplay between cells and ECM



## Dynamic Reciprocity

The ECM is not a silent bystander during the healing process.

The ECM and its associated components play key roles in orchestrating communication that directs incoming cells to grow, divide, move and attach.

The interplay between cells and the ECM is termed 'dynamic reciprocity' and occurs during all phases of wound healing.<sup>[5]</sup>

## Composition

The maintenance of healthy tissue and wound repair require a host of different molecules to guide these complex tissue processes. The ECM is a complex mixture of structural, adhesion and signalling molecules,<sup>[3]</sup> that interact with cells during the phases of wound repair and tissue maintenance.<sup>[4]</sup>

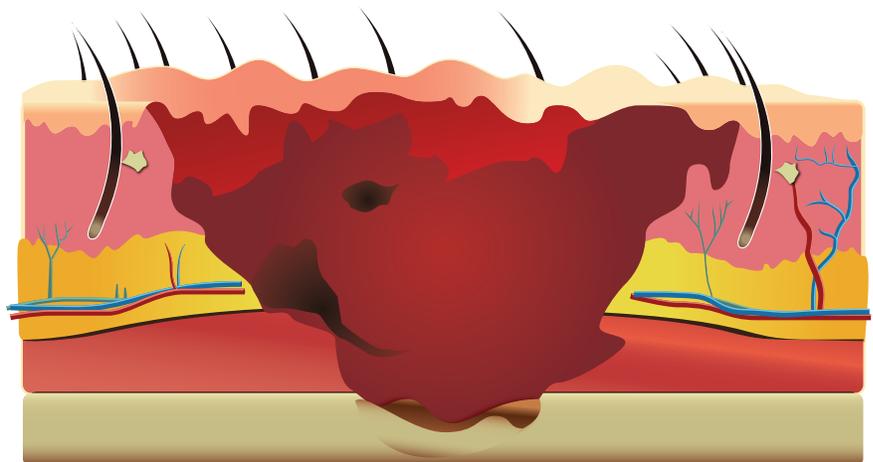
### ECM contains components essential to tissue maintenance and repair

Component	Class	Function
<b>Collagen I</b>	Structural	<b>Provides structure and strength</b>
<b>Collagen III</b>	Structural	<b>Provides delicate scaffold architecture</b>
<b>Collagen IV</b>	Adhesion	<b>Anchors epithelial cells to the matrix</b>
<b>Fibronectin</b>	Adhesion	<b>Enables cell attachment and proliferation during infiltration and remodeling</b>
<b>Laminin</b>	Adhesion	<b>Interconnects scaffold proteins and guides epithelial migration</b>
<b>Elastin</b>	Structural	<b>Provides structural integrity and elasticity</b>
<b>Hyaluronic acid</b>	Structural	<b>Facilitates infiltration via organization of cells and scaffold components</b>
<b>Heparin sulphate</b>	Adhesion	<b>Multifunctional regulator of remodeling</b>
<b>GAGs</b>	Structural	<b>Binds water to maintain scaffold hydration</b>
<b>Growth factors and chemokines</b>	Signaling	<b>Essential communication between cells and between the ECM and cells</b>

## A Damaged or Missing ECM Requires Repair

In acute and chronic wounds, the ECM is missing, structurally damaged or unable to function.<sup>[3, 4]</sup> In response, the body recruits fibroblasts and other cell types to facilitate repair of the ECM.<sup>[2, 5, 6]</sup> Without functional cues from ECM components, wound healing cannot move forward<sup>[4-6]</sup> and chronicity prevails.

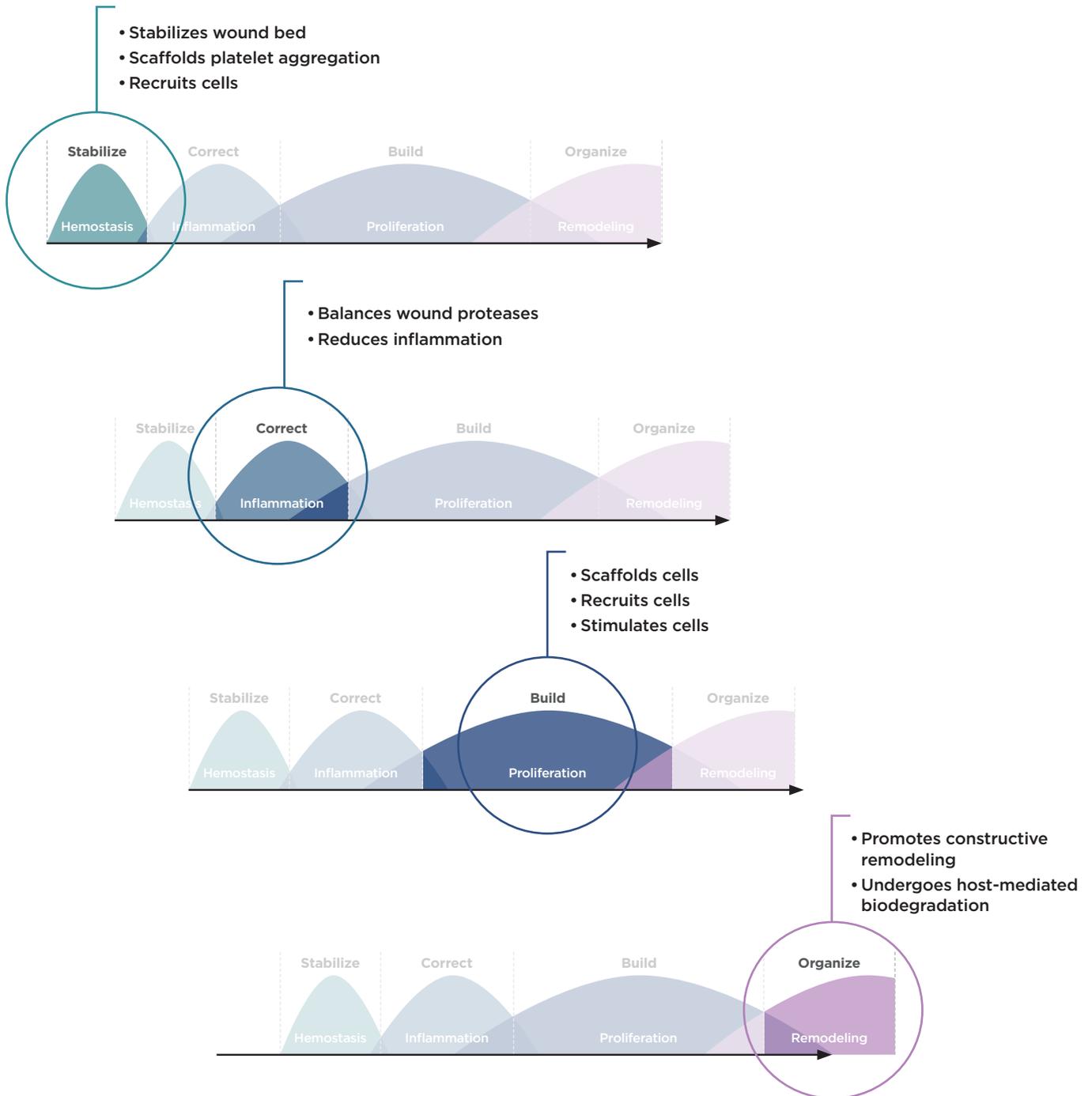
### In acute and chronic wounds the ECM is damaged or missing



## Augments Missing or Damaged ECM

When the ECM is damaged or missing wound healing may be compromised. Technological advances have meant that it is now possible to replace missing or damaged ECM with advanced wound dressings. These ECM technologies act as a provisional ECM to support and guide cell infiltration of the tissue deficit.<sup>[7]</sup> During the phases of wound healing these ECM technologies function to augment the patient's own tissue ECM.<sup>[7-10]</sup>

### ECM scaffolds can influence all phases of healing

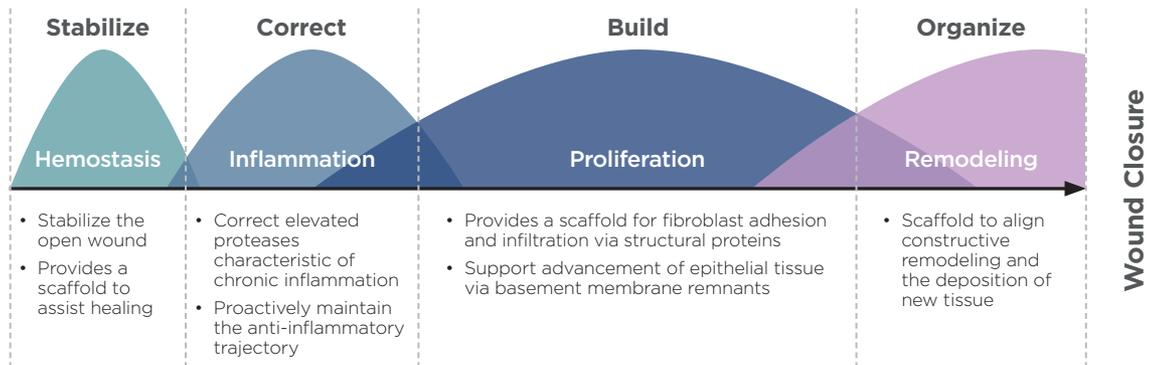


# TISSUE EXTRACELLULAR MATRIX

## Endoform<sup>®</sup> ECM technology provides benefit at each stage of the healing process

Endoform<sup>®</sup>'s advanced scaffold technology is suitable to all phases of healing to stabilize, correct, build and organize tissue in acute and chronic wounds.<sup>10</sup>

### Endoform<sup>®</sup> can be used at all phases of wound management

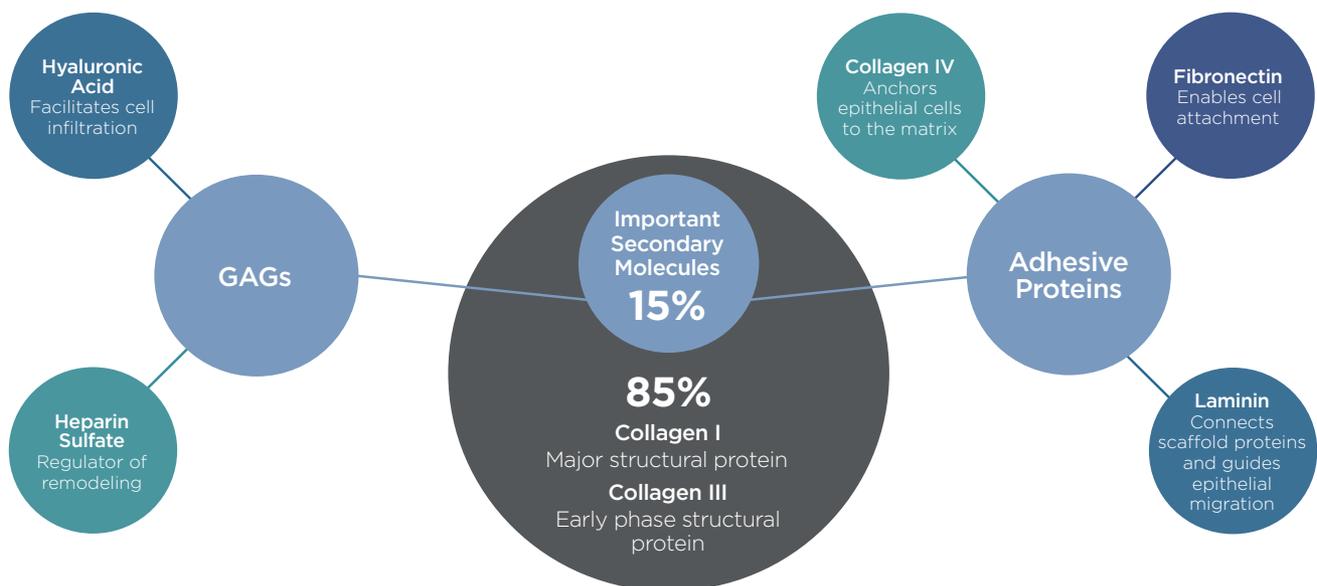


## Endoform<sup>®</sup> contains components important to the tissue healing process

The composition of **Endoform<sup>®</sup>'s** natural extracellular matrix enables appropriate interactions with the patient's cells during the phases of healing.

**Endoform<sup>®</sup>** is 85% collagen and contains important structural and adhesion proteins, and glycosaminoglycans (GAGs).

### The composition of Endoform<sup>®</sup> ECM<sup>11</sup>



Endoform<sup>®</sup> only contains components that are found in the natural extracellular matrix.<sup>1</sup>

