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| **Biomaterial** | **Description** | **Ligand** | **Cell Receptor Interaction** | **Key Papers** |
| **Alginate** | * Derived from brown algae * No native ligands, so requires modification * Most commonly uses ionic crosslinking (using divalent cations) but can utilise covalent crosslinking * Alginate can be easily dissolved for cell recovery making it desirable for cell-matrix investigations * Cannot be degraded naturally | \*\* Blank Slate | \*\* Dependent on choice of modification | (Lee and Mooney, 2012) |
| **Collagen** | * Normally sourced from rat tail tendon, bovine skin and tendon * Enzymatically degradable therefore favourable for invasion assays * Gelation at room temp produces low mechanical strength and limited long-term stability * Temperature largely effects the hydrogel architecture with lower temperatures producing longer fibrils | GFOGER | α2β1, α2β1 | (Shoulders and Raines, 2009) |
| **Polyacrylamide (PA)** | * Most widely used material and thus largely characterised * Wide range of mechanical stiffnesses * Requires protein conjugation for cell attachment * Only 2D capability * Fabrication occurs by reacting acrylamide monomer with bisacrylamide crosslinker – in which concentrations can be varied to achieve desired stiffness. | \*\* Blank Slate | \*\* Dependent on choice of ligand | (Pelham and Wang, 1997; Tse and Engler, 2010) |
| **Polyethylene glycol (PEG)** | * Allows high degree of user modification; PEG can be modified with functional groups that utilise chain-growth, step-growth, or mixed-mode polymerisation * Must be modified with adhesive ligand * Can be engineered to degrade via passive, proteolytic, or user directed modes * Chemically modified PEG can be used to crosslink other polymeric materials | \*\* Blank Slate | \*\* Dependent on choice of modification | (Lin and Anseth, 2009; Lutolf et al., 2003) |
| **Gelatin Methacryloyl (GelMA)** | * Synthesised from denatured collagen * Expresses native ligands for cell adhesion * Addition of photo crosslinker irgacure allows cross-linking of methacrylate sidechains by exposure to UV. * Offers greater mechanical tuneability and wider range of stiffnesses than collagen | RGD | α5β1, α8β1  αVβ1, αVβ3, αVβ5, αVβ6, αVβ8, αIIbβ3 | (Kim et al., 2020; Koistinen and Heino, 2013) |
| **Hyaluronic Acid** | * Sourced from bacterial fermentation or from animal products * Offers high degree of chemical modification enabling greater tuneability * Offers native interaction with cell receptors but does not support integrin-mediated cell adhesion | Repeating disaccharide unit of glucuronate and *N*-acetylglucosamine | CD44 | (Burdick and Prestwich, 2011; Dicker et al., 2014) |

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