

## Dr Anita K Ghag BSc(Hons), PhD

Lecturer in Biomaterials  
Undergraduate Admissions Tutor

**[School of Chemical Engineering \(/schools/chemical-engineering/index.aspx\)](/schools/chemical-engineering/index.aspx)**

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### About

Anita Ghag is a lecturer of Biomaterials in the School of Chemical Engineering.

Prior to taking up the position in Chemical Engineering, Anita was a post-doctoral research associate within the School of Dentistry at the University of Birmingham where her research was based on characterising the in vitro and in vivo response of cells to titanium nanoparticles.

Her research now focuses on the development of novel, functional materials which have the potential to be used in bone tissue engineering applications. In particular, Anita is interested in the local administration of bisphosphonates via carrier systems to critical size bone defects.

### Qualifications

- PhD in Biomedical Materials, School of Materials, The University of Manchester, 2011
- BSc(Hons) in Biomedical Materials Science, The University of Nottingham, 2007

### Biography

Anita Ghag qualified with a BSc (Hons) in Biomedical Materials Science from the University of Nottingham in 2007. She went on to study for a PhD in Biomaterials Science based on the development of electrospun synthetic bone graft substitutes at the University of Manchester in 2010, after which she took up a post-doctoral research associate position within The School of Materials at the University of Manchester as a continuation of the PhD project funded by Johnson and Johnson and the NIHR.

Anita joined the University of Birmingham in 2012 as a post-doctoral research associate at the School of Dentistry investigating the effects of titanium nanoparticles on a number of different cell types. In September 2013, Anita was appointed as a lecturer in Biomaterials in the School of Chemical Engineering. She now teaches and supervises undergraduate and postgraduate students within the school.

### Teaching

#### Teaching programmes

- MSc Bench to Market
- MSc Design and development of drug delivery systems

### Research

Anita Ghag's research focuses on the development and characterisation of materials for use in bone regeneration applications. Previous work has been published on nanofibrous, polymeric bone graft substitutes functionalised with a bisphosphonate drug mimic. Anita's research is now based on the local treatment of bone defects using polymer systems doped with bisphosphonate drugs. The delivery method is based on doping degradable, fibrous microspheres with bisphosphonates for local bone regeneration, in particular of the acetabulum cup.

### Publications

#### Peer reviewed papers (formerly known as Anita Bassi)

- Ghag, A.K., Gough, J.E., and Downes, S. (2013), The osteoblast and osteoclast responses to phosphonic acid containing poly( $\epsilon$ -caprolactone) electrospun scaffolds, *Biomaterials Science*, in press.
- Bassi, A.K., Gough, J.E., and Downes, S. (2012), A novel phosphonate for the repair of critical size bone defects, *The Journal of Tissue Engineering and Regenerative Medicine*, 6: 833–840
- Bassi, A.K., Gough, J.E., Zakikhani, M., and Downes, S. (2011), The Chemical and Physical Properties of Poly( $\epsilon$ -Caprolactone) Scaffolds Functionalised with Poly(Vinyl Phosphonic Acid-Co-Acrylic Acid), *Journal of Tissue Engineering*, doi:10.4061/2011/615328

### Book chapters

- Bassi et al. (2011), 'Bone Tissue Regeneration', In: Bosworth, L.A., and Downes, S. (eds) Electrospinning for tissue regeneration. Cambridge: Woodhead Publishing.

## Patents

- Biocompatible Materials, US Patent - 0914200.1
- Biocompatible Composite Materials, World Patent - 1102468.4

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