



Fakultas Farmasi
Universitas Airlangga

Biomaterial & Translational Research Group

2022

Introduction

Until now, 90% of medicinal raw materials are still imported, even though raw materials are available in abundance in Indonesia. So now the government is making regulations to accelerate the availability of local raw materials.

In addition, there is a large amount of research reaching TRL 7-8 which is ready to be downstream, and a large captive market with a large number of pharmaceutical industries in Indonesia (210). Therefore the Biomaterials and Translational Research Group was formed with the aim of translating research products from bench to bedside.

Biomaterials and Translational RG conduct strong basic, molecular and translational research in support of the mechanism of action as an evidence base for clinical use "from bench to bedside



Projects

- Production of natural hydroxyapatite and its application in bone and dental implants
- Production of allergen extracts and their use in allergy diagnostic kits and allergy desensitization
- Glucosamine production

Research Grants

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1. Hibah Kementerian Kesehatan 2017-2018
 2. Hibah peralatan produksi Kementerian Perindustrian 2018-2019
 3. Hibah penelitian BP BRIN 2020-2022
 4. Hibah Penelitian PDUPT Kemendikbudristek 2021-2022
 5. Hibah Penelitian PTUPT Kemendikbudristek 2021-2024
 6. Hibah Penelitian PPS-PMDSU (2 project) 2022-2024

Year	Research accepted
2016	Injektabel Komposit Bovine Hydroxyapatite Gelatin sebagai sistem penghantaran Alendronat pada celah (defect) tulang akibat Osteoporosis
2017	Scaffold Gelatin -Chitosan Sebagai Penghantaran Diklofenak dan Pengganti Kartilago pada Osteoarthritis
2017	Calon Perusahaan Pemula Berbasis Teknologi (CPPBT): Bonegraft BHAGENTA sebagai Pengisi/Pengganti Tulang dan Antiinfeksi pada Celah Tulang
2018	Pengembangan Produk Bonegraft Halal Dari Tulang Sapi
2019	Karakterisasi Produk Bonegraft Halal Dari Tulang Sapi
2019	Penguatan INOVASI Industri:Pengembangan Produk Bonegraft Dalam Inovasi Teknologi Kesehatan Guna Pencegahan Kecacatan Tulang
2019-2022	Riset Inovasi Produktif (RISPRO): Industrialisasi Bovin Hidroksipapatit sebagai Bahan Baku Biokompatibel Bonegraft
2020-2021	Karakterisasi 3 D Printing BHA-GEL-Alendronat dalam Polylactic acid (PLA)
2021	Analisis Uji Radiologi,immunohistokimia, dan Histopatologi pada Scaffold Gelatin-Chitosan-Diklofenak Sebagai Pengganti Kartilago dan Penghambat Inflamasi Osteoarthritis



PRODUCT RESEARCH

Publications

1. Junaidi Khotib*, Maria A. G., Aniek S. B., Maria L. A. D. L., Erreza R., Chrismawan A. (2021) Signaling Pathway and Transcriptional Regulation in Osteoblasts during Bone Healing: Direct Involvement of Hydroxyapatite as a Biomaterial. *Pharmaceuticals*, Vol. 14(7), 615
2. Samirah, Aniek S. B., Ferdiansyah M., and Junaidi Khotib*. (2021) Fabrication and Characterization of Bovine Hydroxyapatite-gelatin-alendronate Scaffold Cross-linked by Glutaraldehyde for Bone Regeneration, *Journal of Basic and Clinical Physiology and Pharmacology*, Vol. 32(4), pp. 555–560
3. Aniek S. Budiatin*, Maria A. G., Samirah, Chrismawan A., Aulia M. R., Indah S., Ni Putu K. P. P., and Junaidi K., (2021) Bovine Hydroxyapatite-Based Bone Scaffold with Gentamicin Accelerates Vascularization and Remodeling of Bone Defect, *International Journal of Biomaterials*, Vol. 2021
4. Aniek S. Budiatin, Dyah H., Samirah, Toetik A., Wenny P. N., Profinika M., Oky S. Z., and Dinda C. A., (2020) Bovine Hydroxyapatite Extraction from Cow Bone Waste as Raw Material for Bone Screw. *Ecology, Environment and Conservation*, Vol. 26, pp. S46–S50
5. Aniek S. Budiatin, Samirah*, Maria A. G., Wenny P. N., Chrismawan A., and Junaidi K., (2020). The Characterization of Bovine Bone-derived Hydroxyapatite Isolated Using Novel Non-hazardous Method, *Journal of Biomimetics, Biomaterials and Biomedical Engineering*, Vol. 45, pp. 49–56



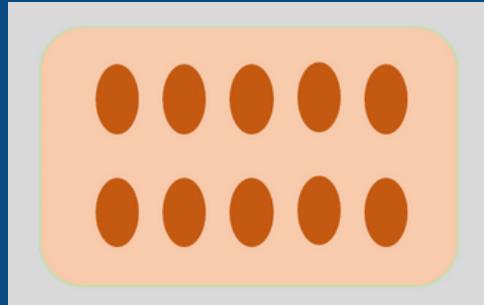
PRODUCT RESEARCH

Patents

Patent / HAKI	Year	Type
Pelet dari Bovine Hydroxyapatite-Gelatine dan Gentamisin sebagai Obat untuk Preventif dan atau Kuratif Osteomielitis	16 Des 2016 02 Juli 2021	Granted Paten
Komposisi Pelet dari Bovine Hydroxyapatite-GelatinedanAlendronat, Proses pembuatannya dan Penggunaannya sebagai BONE FILLER padaPenyakit Osteoporosis	4 April 2016 25 Sep 2019	Granted Paten
Komposisi Bone Substitute yang DapatDisuntikkan sebagai Pengisi pada Celah Tulang	15 Des 2017 16 Okt 2019	Granted Paten
Komposisi, Proses Pembuatan Scaffold Dari Chitosan-Gelatin Tulang Sapu sebagai pengganti Kartilago dan Pembawa Diklofenak	2021	Granted Paten
Proses Produksi, Ekstraksi Bovin Hidroksiapatit dari Femur Tulang Sapi	2021	Paten

Products

Kit diagnostik berisi 10 ekstrak allergen



Tablet sublingual
untuk desensitisasi
dalam imunoterapi

Produk Hidroksi Apatit (Bhanex, Bhagenta)



Team

1. Prof. Junaidi Khotib, M. Kes., PhD
2. Dr. Aniek Setiya Budiatin, M.Si
3. Dr. Samirah, SpFRS
4. Dewi Wara Shinta, M. Farm.Klin



PT Biofarma
PT. Eka Ormed
PT Toya Indo Manunggal
PT Inovasi Bioproduk Indonesia
RSUD Dr Soetomo

Research Collaboration

Questions? Contact us.



Biomaterial
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