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Industrial, Research, and Development Activity:

I am the founder and principal shareholder of the pioneering company in the development of medical devices for dental surgery, with a focus on innovative solutions for bone and soft tissue regeneration utilizing xenograft-based technologies. My Research and Development (R&D) activities have positioned us as the first producer in Iran and the Middle East for several advanced biomaterials and medical products.

Xenogeneic Bone Graft Materials: Thermal and enzymatic variants are optimized to enhance biocompatibility and osteoconductive properties, promoting effective bone regeneration and improving graft integration in clinical applications.

Bovine Pericardium Membrane: A natural tissue scaffold derived from bovine pericardium, it is used in soft tissue repair and reconstruction, providing structural support and facilitating healing in periodontal and oral surgeries.

Bovine Collagen Membrane: This versatile biomaterial exhibits excellent biocompatibility and is widely utilized in wound healing and tissue engineering. It supports tissue regeneration, minimizes inflammation, and accelerates healing processes in soft tissue grafting.

Customized Bone Block Based on Patient CB-CT scans: Advanced 3D-engineered bone blocks are customized based on high-resolution CB-CT scan data, ensuring an anatomically accurate fit for individual patients. This precision enhances surgical outcomes, particularly in complex bone grafting procedures.

Demineralized Cortical Plate: Derived from bovine cortical bone, this graft material undergoes demineralization to enhance its osteoinductive properties, promoting bone formation and accelerating the healing process at defect sites.

Artificial Plasma for Hard and Soft Tissue Grafting: Inspired by human plasma and PRF, this viscoelastic solution is designed to accelerate wound healing and tissue regeneration in dental, maxillofacial, and implant procedures. Developed using advanced peptide engineering, it mimics the regenerative effects of natural growth factors to enhance cellular activity and support both bone and soft tissue repair.

Key benefits: Promotes fast and effective healing, enhances graft integration, Biocompatible and easy to use, Ideal for bone augmentation, soft tissue repair, and implantology.

A novel approach to regenerative therapy, combining biomimetic design with clinical effectiveness.

Medical Laboratory Experience: Founder of the Laboratory of Pathobiology and Medical Genetics. Since 2012, Tehran, Iran, <http://www.nooralab.com>

Publications:

1. Synergistic Effect of Photobiomodulation and Leukocyte-Platelet Rich Fibrin on Bone Regeneration in Rat Critical Defects. A Sadeghian, B Rohani, S Hasannia, F Mashhadiabbas, R Fekrazad Photodiagnosis and Photodynamic Therapy, **(2025)**, 104687. doi.org/10.1016/j.pdpdt.2025.104687
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4. Dual application of hydroxyapatite tag in engineered PDGF peptide: purification and drug delivery. Maryam Sadeghi-Ardebili, Sadegh Hasannia, Bahareh Dabirmanesh, Ramazan Ali Khavari-Nejad. New Cellular and Molecular Biotechnology Journal. **(2024)**, 15, 57, Pages: 57-69
5. Recent advances in surface plasmon resonance for the detection of ovarian cancer biomarkers: a thorough review. SV Shahbazlou, S Vandghanooni, B Dabirmanesh, M Eskandani, et al. Microchimica Acta **(2024)**, 191 (11), 659
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10. Dentine tubule occlusion effect of hydrolyzed casein in a bioactive glass-based dental desensitizing gel. N. Shokouhnejad, E. Tamjid and S. Hasannia. 2023, Journal of Dentistry, October, 139:104749
11. Biotinylated aptamer-based SPR biosensor for detection of CA125 antigen. S. Valizadeh Shahbazlou, S. Vandghanooni, B. Dabirmanesh, M. Eskandani, S. Hasannia. Microchemical Journal Volume 194, November 2023. (Accepted) DOI:10.1016/j.microc.2023.109276
12. Additive Manufacture of PLLA Scaffolds Reinforced with Graphene Oxide Nanoparticles via Digital Light Processing (DLP). Advances in Industrial and Manufacturing Engineering. O. Kordi, A. H. Behraves, S. Hasannia, S. K. Hedayati, M. Pourghayoumi, M. Mazdi, I. Ghaderi. Approved: 27 June 2023, DOI: 10.20944/preprints202306.1914.v1
13. Preparation and examination of a scaffold based on hydroxylated polyphosphazene for tissue engineering: In vitro and in vivo studies. K. Gholivand, S. A. Alavinasab Ardebili, M. Mohammadpour, R. Eshaghi Malekshah, S. Hasannia, and B. Onagh. 27 January 2022
14. Evaluation of silver carp (*Hypophthalmichthys molitrix*) skin collagen characteristics recovered by the isoelectric precipitation method. Z. Rahimabadi, S. Faralizadeh, H. Bahrami, S. Hasanni. Journal of Fisheries, 2022, 75 (1), 17-30

15. Efficacy assessment of a triple anthrax chimeric antigen as a vaccine candidate in guinea pigs: challenge test with *Bacillus anthracis* 17 JB strain spores. M. Abdous, S. Hasannia, A.H. Salmanian, S. Sh. Arab. *Immunopharmacology and Immunotoxicology*, 14 Jul 2021, 43(4):495-502
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23. Potential of Treated Dentin Matrix Xenograft for Dentin-Pulp Tissue Engineering. H. Bakhtiar, A. Mazidi, S. Mohammadi-Asl, S. Hasannia, M. R. Ellini, M. Pezeshki-Modaress, S. N. Ostad, K. Galler, Azarpazhooh, and A. Kishen. *Journal of Endodontics*, 20 Nov. 2019
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Patents (Iran):

- Production of camelids single-domain antibodies to detection of anthrax antigens using phage display and theoretical studies. (S. Hasannia, M. Abdoos, A.H. Salmanian, and A. Shali). No. 92006, 2017-04-24
- The process of using triple fusion antigen (ELP) as a candidate for anthrax vaccine. (S. Hasannia, M. Abdoos, A.H. Salmanian, and A. Shali). No. 93441, 2017-09-06
- Production of ostrich and camel collagen type I with using of two methods: enzymatic and non-enzymatic process.
- Construction of chimeric thermostable KOD DNA polymerase based on theoretical Studies for reduced fidelity.
- Design and construction of secretory gene construct for uricase enzyme purification in prokaryotic host.
- Method for preparing a camel cortical and cancellous bone xenograft focused on optimization of sintering temperature.
- A new triple chimeric subdomains of anthrax toxins as vaccine candidate.
- Production of *Thermus thermophilus* DNA ligase for application in MLPA detection kits.

International Awards:

- 1- New Pattern of PGI Isoenzyme as A Diagnostic Marker of Esophageal Squamous Cell Carcinoma.** Hasannia S., Lotfi A.S.n, Rooshan M.K., Khoshdel A., Mohsenifar A. *22nd International Congress of Pathology & Laboratory Medicine, Busan, South Korea, Aug 30 - September 3, 2003...-- (Young Investigator Award)*
- 2- New Application of HDL2-C in Assessment of Patients with Coronary Heart Disease** Mohsenifar A. Hasannia S., Mir Blook F., Shaad B., Samami N. *22nd International Congress of Pathology & Laboratory Medicine, Busan, South Korea, Aug 30 -September 3, 2003, (Young Investigator Award)*
- 3- Increased Excretion of Fatty Acid Metabolites in the Urine of Patients with Chain Acyl-CoA Dehydrogenase as an Indicator in Diagnosis of this Disease.** Mohsenifar A., Lotfi A.S., Zaman, T. Kazemnejad A. and S. Hasannia, *The 18th International Congress of Clinical Chemistry and Laboratory Medicine, 20-25 Oct. 2002, Kyoto, Japan (AWARD)*