

possuir o maior contingente populacional do país, assim como a maior concentração de recursos financeiros quando comparada com as demais regiões. Contudo, há que se complementar que a maior disponibilidade de planos de saúde, assim como a maior oferta de recursos diagnósticos tanto no setor público, quanto no privado, contribui significativamente para que a região Sudeste se mantenha com esse quantitativo superior. O estudo conclui que a deficiência do FVII, é a principal causa dos distúrbios hemorrágicos hereditários raros e/ou adquiridos, com predominância na região Sudeste do Brasil. Evidencia-se a importância do desenvolvimento de pesquisas sobre esta deficiência, há um expressivo número de pessoas acometidas e a sua prevalência se mantém constante.

Referências:

Perry D. Factor VII Deficiency. *Br J Haematol.* Oxford. 2002;118(3):689-700.

Perry DJ. Factor VII deficiency. *Blood Coagul Fibrinolysis.* Oxford. 2003;14 (Suppl 1):S47-54.

Pollak E, et al. Asymptomatic factor VII deficiency in African Americans. *Am J Clin Pathol.* Baltimore. 2006;126(1):128-32.

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APPLICATION OF A THREE-DIMENSIONAL BIOMIMETIC BONE NICHE MODEL FOR HEMATOPOIETIC CELL CULTURE

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Introduction: The bone marrow microenvironment constitutes an important element in the molecular and chromosomal characterization of hematological neoplasms, particularly in myelodysplastic neoplasms, where cytogenetic alterations represent determinant prognostic markers. Conventional cytogenetic analysis, based on structural and functional evaluation of chromosomes during cell division, remains an essential diagnostic methodology for obtaining adequate metaphases. Conventional protocols employ two-dimensional systems in conical tubes; this configuration does not mimic the three-dimensional architecture of the hematopoietic bone marrow niche, which may compromise cellular proliferative efficiency and, consequently, reduce mitotic division yield. The optimization of metaphase yield constitutes a critical factor in cytogenetic analysis, especially in hypocellular samples that present low density of dividing cells. The increase in obtaining adequate metaphases significantly reduces the incidence of inconclusive reports and ensures precise chromosomal characterization of hematological neoplasms. 3D printing offers innovative alternatives through the development of three-dimensional scaffolds that can reproduce the characteristics of cancellous bone stroma. **Objectives:** The present study investigated the

applicability of a three-dimensional biomimetic culture system of trabecular bone tissue in optimizing hematopoietic cell cultures intended for cytogenetic analysis. **Material and methods:** The matrix was modeled using Fusion360 software and produced with fused deposition modeling technology in polylactic acid, with 25% infill. Sixteen samples from patients with suspected hematological diagnosis were evaluated (female population: n=7, mean age 65.7 years; male population: n=9, mean age 43.1 years). The experimental protocol compared cultures performed in 3D matrices versus conventional two-dimensional systems, quantifying metaphases obtained in both conditions. **Results:** The results demonstrated increased metaphase yield in 75% of samples cultured in the three-dimensional system. Four samples showed reduction in metaphase count (4% to 82.9%). Global statistical analysis did not show significant differences between methods ($p=0.093$). However, stratification by sample origin revealed a statistically significant difference for the three-dimensional system in peripheral blood cultures ($p=0.031$). **Discussion and conclusion:** These findings suggest that three-dimensional culture systems provide a more adequate microenvironment for hematopoietic cell proliferation, optimizing subsequent cytogenetic analyses. The implementation of three-dimensional technologies represents a possible significant advance in hematological diagnostic methodologies, with potential application in experimental and clinical protocols.

Referências:

1. Audet J, Zandstra PW, Eaves CJ, Piret JM. Advances in hematopoietic stem cell culture. *Curr Opin Biotechnol.* 1998;9(2):146-51.
2. Belloni D, Ferrarini M, Ferrero E, Guzzeloni V, Barbaglio F, Ghia P, et al Protocol for generation of 3D bone marrow surrogate microenvironments in a rotary cell culture system. *STAR Protoc.* 2022;3(3):10160107-9.
3. Philippeos C, Hughes RD, Dhawan A, Mitry RR. Introduction to cell culture. *Methods Mol Biol.* 2012;806:1-13.

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BENCHMARKING INTERLABORATORIAL PARA PADRONIZAÇÃO DA DOSAGEM DE INIBIDOR DO FATOR VIII: UM PROJETO PILOTO ENTRE CENTROS PÚBLICOS ESPECIALIZADOS NO TRATAMENTO DE HEMOFÍLIA.

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