

elementos regulatórios. Ultimamente, O NGS tem sido explorado como uma metodologia para a detecção de alterações citogenéticas, sendo útil na detecção de pequenas variantes como, as variantes de nucleotídeo único (SNVs) e pequenas inserções e deleções (indels) de relevância clínica, entretanto para VEs a resolução é limitada. Além de apresentar um alto custo, bioinformática complexa e uma alta profundidade de cobertura a depender do painel utilizado. Deste modo, O OGM se destaca, pois é capaz de detectar VEs estruturais a partir de 500 pares de bases, combinando imagens de alta resolução e análises analíticas avançadas, sem a necessidade de uma análise bioinformática posterior. O fluxo de trabalho é simples, utilizando DNA de alto peso molecular, imagens de moléculas únicas, nanotecnologia e análise computacional avançada em um único ensaio. **Conclusão:** Nota-se, que esta nova tecnologia tem se mostrado altamente promissora e se utilizada em conjunto com as técnicas tradicionais, poderá trazer resultados ainda mais precisos e confiáveis.

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MAPPING OF POTENTIALLY CARCINOGENIC INGREDIENTS IN COSMETICS AND THEIR ASSOCIATION WITH HEMATOLOGIC NEOPLASMS: PRELIMINARY FINDINGS FROM THE TÓXICOS PROJECT

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Introduction: According to the Brazilian National Cancer Institute (INCA), cancer is the second leading cause of death in Brazil, behind only cardiovascular diseases. Between 2023 and 2025, an estimated 704,000 new cases are expected annually. If this growth trend continues, federal spending on hospital and outpatient procedures within the Unified Health System (SUS) for oncology patients could reach BRL 7.84 billion by 2040. The disease's etiology involves genetic, environmental, and epigenetic factors, comprising the exposome concept, which considers the totality of environmental exposures throughout life and their cumulative impact on chronic diseases like cancer. A key exposure route to hazardous chemicals is daily cosmetic use. Ingredients such as preservatives and fragrances may act as endocrine disruptors or carcinogens. In Brazil, despite regulation by ANVISA, ingredients classified by the International Agency for Research on Cancer (IARC) as toxic still appear in popular products, underscoring the need for regulatory revision focused on long-term effects and cumulative exposure. **Objectives:** This study aimed to identify and characterize potentially carcinogenic ingredients in cosmetics marketed in Brazil, evaluate their classification according to IARC, and discuss their relevance within the exposome framework, intending to support preventive

regulatory strategies in the SUS. **Material and methods:** This study collected and analyzed 400 cosmetic products available in Brazil. Ingredients listed on labels were cataloged and matched to IARC classifications: Group 1 (carcinogenic to humans), Group 2A (probably carcinogenic), and Group 2B (possibly carcinogenic). Ingredients without IARC classification were noted to identify toxicity data gaps. The analysis included qualitative evaluation of labeling consistency and detection of potentially masked substances. Results were discussed in the exposome context to assess cumulative risk and regulatory impact. **Results:** Among 1,112 ingredients identified, only 29 had IARC classifications: 3 carcinogenic (Group 1), 1 probably carcinogenic (Group 2A), and 2 possibly carcinogenic (Group 2B). Alarming, 959 ingredients (over 80%) lacked IARC classification, revealing large knowledge gaps on toxicity. Noteworthy compounds included oxybenzone, parabens, and triclosan, often linked to hormonal disruption and increased cancer risk. Labeling inconsistencies, masked substances, and lack of clear bans on toxic compounds were found. **Discussion and conclusion:** Findings highlight the urgent need for prevention strategies based on the exposome, requiring stricter regulation, transparent labeling, and safer ingredient substitution. This urgency is supported by prior research showing pesticide-exposed workers without PPE had reduced DNA repair gene expression and CHIP mutations linked to a 27-fold higher risk of bone marrow neoplasms. Additionally, recent (2024) studies showed ammonia-based hair bleach products activated the neoplastic STING gene pathway, causing bone marrow cancer-like changes in 20% of exposed mice. This study is part of the TÓXICOS project, which will expand to food and hygiene/cleaning products, applying a Bayesian algorithm to reclassify risks and share data on an open digital platform, supporting regulatory and preventive actions within SUS.

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MYELODYSPLASTIC NEOPLASM WITH Y CHROMOSOME NULLISOMY AND CHROMOSOME 14 TRISOMY: A CASE OF CLONAL EVOLUTION INVESTIGATED BY FISH

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Introduction: Chromosomal abnormalities play a crucial role in the pathogenesis and progression of myelodysplastic neoplasms (MDS). Mosaic loss of the Y chromosome (mLOY), a common cytogenetic event in elderly men, has been associated with an increased risk of age-related diseases, including cancer. Although frequently observed in the context of clonal hematopoietic disorders, mLOY may coexist with other genetic alterations, suggesting a more complex clonal evolution that remains poorly understood. In this context, we