



Tipo	Periódico
Título	Plasma Metabolome Signatures to Predict Responsiveness to Neoadjuvant Chemotherapy in Breast Cancer
Autores	Alex Ap. Rosini Silva, Marcella R. Cardoso, Danilo Cardoso de Oliveira, Pedro Godoy, Maria Cecília R. Talarico, Junier Marrero Gutiérrez, Raquel M. Rodrigues Peres, Lucas M. de Carvalho, Natália Angelo da Silva Miyaguti, Luis O. Sarian, Alessandra Tata, Sophie F. M. Derchain, Andreia M. Porcari
Autor (es) USF	Alex Ap. Rosini Silva, Danilo Cardoso de Oliveira, Pedro Godoy, Junier Marrero Gutiérrez, Raquel M. Rodrigues Peres, Lucas M. de Carvalho, Natália Angelo da Silva Miyaguti, Andreia M. Porcari
Autores Internacionais	Marcella R. Cardoso, Alessandra Tata
Programa/Curso (s)	Programa de Pós-Graduação Stricto Sensu em Ciências da Saúde
DOI	<a href="https://doi.org/10.3390/cancers16132473">https://doi.org/10.3390/cancers16132473</a>
Assunto (palavras chaves)	breast cancer; cancer biology; drug resistance; metabolomics; neoadjuvant chemotherapy response
Idioma	Inglês
Fonte	Título do periódico: Cancers ISSN: 16132473 Volume/Número/Paginação/Ano: 2024, 16(13), 2473
Data da publicação	18 June 2024 / Revised: 27 June 2024 / Accepted: 4 July 2024 / Published: 6 July 2024
Formato da produção	Impressa ou digital
Resumo	Background: Neoadjuvant chemotherapy (NACT) has arisen as a treatment option for breast cancer (BC). However, the response to NACT is still unpredictable and dependent on cancer subtype. Metabolomics is a tool for predicting biomarkers and chemotherapy response. We used plasma to verify metabolomic alterations in BC before NACT, relating to clinical data. Methods: Liquid chromatography coupled to mass spectrometry (LC-MS) was performed on pre-NACT plasma from patients with BC (n = 75). After data filtering, an SVM model for classification was built and validated with 75%/25% of the data, respectively. Results: The model composed of 19 identified metabolites effectively predicted NACT response for training/validation sets with high sensitivity (95.4%/93.3%), specificity (91.6%/100.0%), and accuracy (94.6%/94.7%). In both sets, the panel correctly classified 95% of resistant and 94% of sensitive females. Most compounds identified by the model were lipids and amino acids and revealed pathway alterations related to chemoresistance. Conclusion: We developed a model for predicting patient response to NACT. These metabolite panels allow clinical gain by building precision medicine strategies based on tumor stratification.
Fomento	This research was funded by the Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP), grant number 2019/04314-6; the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), grant number 304544/2022-1; and the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), grant number 88887.504805/2020-00. N.A.d.S.M. was awarded a "CAPES/BRAZIL Scholarship".