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Resumo	The histological and molecular subtypes of breast cancer demand distinct therapeutic approaches. Invasive ductal carcinoma (IDC) is subtyped according to estrogen-receptor (ER), progesterone-receptor (PR), and HER2 status, among other markers. Desorption-electrospray-ionization-mass-spectrometry imaging (DESI-MSI) is an ambient-ionization MS technique that has been previously used to diagnose IDC. Aiming to investigate the robustness of ambient-ionization MS for IDC diagnosis and subtyping over diverse patient populations and interlaboratory use, we report a multicenter study using DESI-MSI to analyze samples from 103 patients independently analyzed in the United States and Brazil. The lipid profiles of IDC and normal breast tissues were consistent across different patient races and were unrelated to country of sample collection. Similar experimental parameters used in both laboratories yielded consistent mass-spectral data in mass-to-charge ratios (m/z) above 700, where complex lipids are observed. Statistical classifiers built using data acquired in the United States yielded 97.6% sensitivity, 96.7% specificity, and 97.6% accuracy for cancer diagnosis. Equivalent performance was observed for the intralaboratory validation set (99.2% accuracy) and, most remarkably, for the interlaboratory validation set independently acquired in Brazil (95.3% accuracy). Separate classification models built for ER and PR statuses as well as the status of their combined hormone receptor (HR) provided predictive accuracies (>89.0%), although low

	classification accuracies were achieved for HER2 status. Altogether, our multicenter study demonstrates that DESI-MSI is a robust and reproducible technology for rapid breast-cancer-tissue diagnosis and therefore is of value for clinical use.
Fomento	