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(54) **Title:** SYSTEMS AND METHODS FOR USING AN IMMUNOSTAINING MASK TO SELECTIVELY REFINE ISH ANALYSIS RESULTS

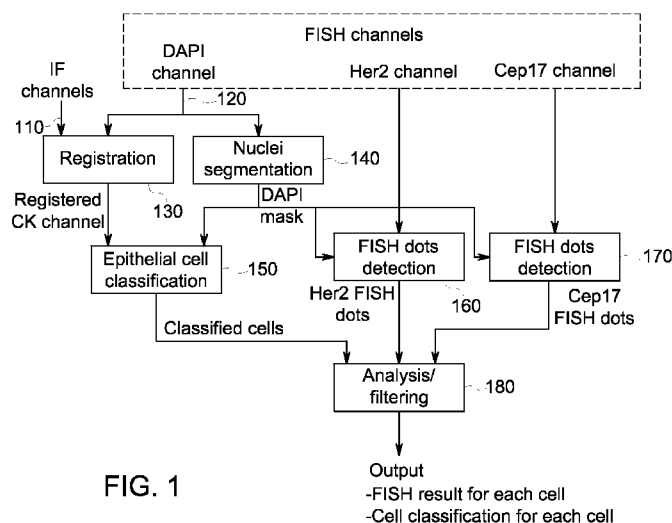


FIG. 1

(57) **Abstract:** A computer-implemented method of processing image data representing biological units in a tissue sample includes receiving a first image of the tissue sample containing signals from an immunofluorescent (IF) morphological marker, wherein the tissue sample is stained with the IF morphological marker, and receiving a second image of the same tissue sample containing signals from a fluorescent probe, wherein the tissue sample is hybridized in situ with the fluorescent probe. The method further includes classifying each biological unit in the tissue sample into one of at least two classes based on a mean intensity of the signals from the IF morphological marker in the first image, performing a fluorescence in situ hybridization (FISH) analysis of the tissue sample in the second image to obtain results therefrom, and filtering the results of the FISH analysis to produce a subset of the results pertaining to biological units classified in one class.