Membrane-localized Keratin-14 Promotes Invasion*

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Abstract. Metastasis is the main predictor of outcome for patients with cancer, yet the molecular mechanism driving invasive phenotypes is not well understood. Keratin 14 (K14) is a known molecular biomarker that is correlated with poor outcomes in breast cancer patients. In this study, we apply our automated computer model that quantifies the invasive potential of tumors to characterize K14 expression as it relates to invasion. We test the hypothesis that K14 is directly correlated to invasion versus the alternative hypothesis that size is the main predictor. We used two different transgenic mice as our breast cancer tumor models. Organoids were generated from these mice, and each organoid had a corresponding differential interference contrast image, K14 image, and an invasive potential score generated using our automated system. The parameters assessed include the following: entire K14 expression, peripheral K14 expression (edges of the organoid), central K14 expression (center of the organoid), and organoid size. Peripheral K14 expression showed the strongest correlation with invasion scores for both types of transgenic mice. The results suggest that K14 expression in cells located in the periphery may be an important marker of invasion.

Keywords: First keyword · Second keyword · Another keyword.

1 First Section

1.1 A Subsection Sample

Please note that the first paragraph of a section or subsection is not indented. The first paragraph that follows a table, figure, equation etc. does not need an indent, either.

Subsequent paragraphs, however, are indented.

* Supported by organization x.

Sample Heading (Third Level) Only two levels of headings should be numbered. Lower level headings remain unnumbered; they are formatted as run-in headings.

Sample Heading (Fourth Level) The contribution should contain no more than four levels of headings. Table 1 gives a summary of all heading levels.

Table 1. Table captions should be placed above the tables.

Heading level	Example	Font size and style
Title (centered)	**Lecture Notes**	14 point, bold
1st-level heading	**1 Introduction**	12 point, bold
2nd-level heading	**2.1 Printing Area**	10 point, bold
3rd-level heading	**Run-in Heading in Bold.** Text follows	10 point, bold
4th-level heading	*Lowest Level Heading.* Text follows	10 point, italic

Displayed equations are centered and set on a separate line.

$$x + y = z \tag{1}$$

Please try to avoid rasterized images for line-art diagrams and schemas. Whenever possible, use vector graphics instead (see Fig. 1).

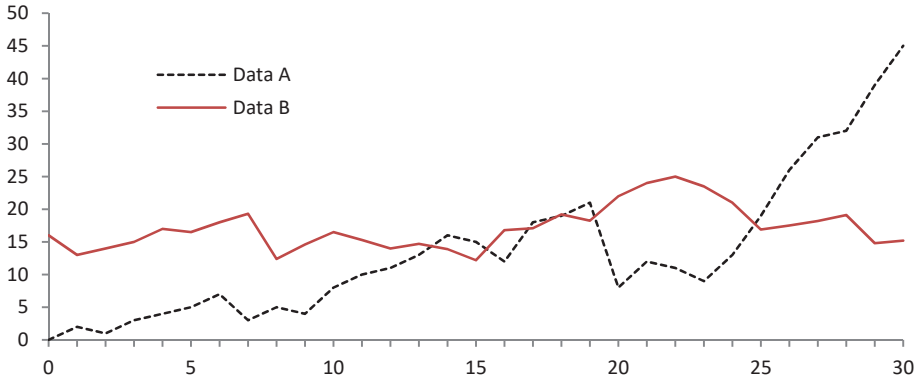

Fig. 1. A figure caption is always placed below the illustration. Please note that short captions are centered, while long ones are justified by the macro package automatically.

Theorem 1. *This is a sample theorem. The run-in heading is set in bold, while the following text appears in italics. Definitions, lemmas, propositions, and corollaries are styled the same way.*

Proof. Proofs, examples, and remarks have the initial word in italics, while the following text appears in normal font.

For citations of references, we prefer the use of square brackets and consecutive numbers. Citations using labels or the author/year convention are also acceptable. The following bibliography provides a sample reference list with entries for journal articles [1], an LNCS chapter [2], a book [3], proceedings without editors [4], and a homepage [5]. Multiple citations are grouped [1–3], [1, 3–5].

References

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