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## Data Article

# Dataset on granulopoiesis- and lymphopoiesis-stimulating cytokine levels in insulin secretagogue users with incident breast cancer



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## ABSTRACT

GM-CSF and G-CSF are widely used for their benefit in reducing chemotherapy-associated neutropenia. However, whether GM- or G-CSF administration could have tumorigenic or pro-metastatic effects or whether insulin resistance could negatively impact such effects is not known. Their ability to stimulate monocyte production at the same time with the highly sought after neutrophils' production, enables an enhanced potential for activation of tumor-associated macrophages. At the same time, IL-7 remains the main driver of B and T cell differentiation and maturation, a process linked to the development of insulin resistance and response to diabetes pharmacotherapy.

Insulin secretagogues have the potential to interfere with the hematopoiesis process, respectively with the formation of lineages that may lead to a tumorigenic or pro-metastatic phenotype, but this relationship has not been yet investigated. The data presented here shows the relationship between pre-existing use of insulin secretagogues in women diagnosed with breast cancer and type 2 diabetes mellitus, the

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GM-CSF, G-CSF and IL-7 cytokine profiles at the time of breast cancer diagnosis, and subsequent cancer outcomes. A Pearson correlation analysis evaluating the relationship between investigated cytokines stratified by secretagogue use and controls, and interferon is also provided.

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## Specifications table

Subject area	Clinical and Translational Research
More specific subject area	Biomarker Research, Cancer Epidemiology
Type of data	Tables
How data was acquired	Tumor registry query was followed by vital status ascertainment, and medical records review Luminex <sup>®</sup> -based quantitation of hematopoietic cytokines (granulocyte colony stimulating factor, granulocyte macrophage colony stimulating factor, and interleukin- 7) from plasma samples was conducted. A Luminex <sup>®</sup> 200 <sup>™</sup> instrument with Xponent 3.1 software was used to acquire all data
Data format	Analyzed
Experimental factors	A total of 3 hematopoietic cytokines were determined from the corresponding plasma samples collected at the time of breast cancer diagnosis
Experimental features	The dataset included 97 adult females with diabetes mellitus and newly diagnosed breast cancer (cases) and 194 matched controls (breast cancer only). Clinical and treatment history were evaluated in relationship with cancer outcomes and hematopoietic cytokines profiles. A cytokine correlation analysis was also performed.
Data source location	United States, Buffalo, NY - 42° 53' 50.3592"N; 78° 52' 2.658"W
Data accessibility	The data is with this article

## Value of the data

- Lymphopoiesis and granulopoiesis are processes governed by very distinct hematopoiesis cytokines: IL-7, GM-CSF, and G-CSF.
- G-CSF and GM-CSF levels are elevated in type 2 diabetes and breast cancer and have the potential to increase the density of cancer cells at the metastatic sites, resulting in enhanced pro-metastatic ability [2–4].
- IL-7's aberrant expression is thought to be involved with breast cancer development [5].
- This dataset represents the observed relationship between insulin secretagogue use, cancer outcomes and circulating GM-CSF, G-CSF and IL-7 at breast cancer diagnosis.
- Our observations may assist in future research decisions aimed at clarifying the involvement of insulin production in hematopoiesis.

## 1. Data

Reported data represents the observed association between use of insulin secretagogues preceding breast cancer diagnosis and GM-CSF, G-CSF and IL-7 profiles at the time of cancer diagnosis in women

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