

**Gastrointestinal stromal tumor (GIST)** is found in the gastrointestinal (GI) tract and belongs to a group of rare cancers called soft tissue sarcomas. Sarcomas begin in muscle, fat, fibrous tissue, blood vessels, or other supporting tissue of the body.<sup>1</sup>

Although GIST can arise anywhere in the GI tract, they occur most often in the stomach (50 – 70 percent) and less commonly in the small intestine (20 – 30 percent). The rest are found in the large intestine (colon and rectum), esophagus and anus.<sup>2</sup>

### **Facts and Figures About GIST**

It is estimated that about 4,500 to 6,000 people in the United States are diagnosed annually with GIST.<sup>2</sup>

- Unlike most other cancers, for GIST, there is no standard staging system, which is the process of finding out how much cancer is in the body and where it is located.<sup>3</sup>
  - Prognostic factors have been identified including tumor count, size and location.<sup>3</sup>
  - Historic overall five-year survival rates in patients with GIST were about 25 percent with a median survival of about 19 months.<sup>4</sup>
  - The introduction of imatinib mesylate in 2002 for the treatment of GIST brought the two-year survival rates for patients with metastatic disease to approximately 70 percent.<sup>5</sup>

### **Biology**

- The vast majority of GIST are characterized by expression of a protein receptor called KIT that is involved in cancer growth and development.<sup>6</sup>
- Approximately 88 percent of GIST have mutations in KIT.<sup>6</sup>
- Approximately 5 – 7 percent of GIST patients have mutations in another protein receptor called PDGFR, or platelet-derived growth factor receptor.<sup>7</sup>
- It is believed that a deviation, or mutation, in the normal genetic makeup in these two proteins causes the development of GIST in most patients.<sup>8</sup>
- There is growing evidence that KIT mutations impact the course of the disease, especially mutations in KIT exons 9 and 11. Mutational testing is playing an increasing role in the diagnosis and management of GIST.<sup>9</sup>

### **Risk Factors**

- In rare cases, GIST has been diagnosed in many members within the same family. However, most cases of GIST are sporadic, meaning there is no evidence that they are being passed from generation to generation, and they have no apparent cause.<sup>10</sup>
- The majority of people diagnosed with GIST are older than 50.<sup>2</sup>

### **Diagnosis and Treatment**

- GIST is often asymptomatic until it reaches a large size, bleeds, or ruptures.<sup>11</sup> Not infrequently, GIST is discovered incidentally during radiologic imaging for an unrelated condition or as a secondary finding in a surgical resection, which is the removal of all or part of an organ.<sup>12</sup>
- At diagnosis, approximately half of malignant GIST are metastatic.<sup>3</sup>
- The primary treatment for newly diagnosed GIST patients is surgery. Other standard cancer treatments - chemotherapy and radiation - have had limited success in the treatment of GIST.<sup>13</sup>
- The molecular-targeted agent imatinib mesylate was the first systemic therapy to be approved for GIST and is currently the standard of care for first-line treatment of patients with advanced GIST.<sup>13</sup>
- Although most patients with advanced GIST benefit from imatinib treatment, they may subsequently develop resistance to the agent.<sup>7</sup>
- A multi-kinase inhibitor is approved for patients with imatinib-resistant GIST.<sup>7</sup>

For additional information, please visit: <http://www.pfizer.com/asco>.

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- <sup>1</sup> American Cancer Society. What are gastrointestinal stromal tumors? Available at: [http://www.cancer.org/docroot/CRI/content/CRI\\_2\\_4\\_1x\\_What\\_Are\\_Gastrointestinal\\_Stromal\\_Tumors.asp?rnav=cri](http://www.cancer.org/docroot/CRI/content/CRI_2_4_1x_What_Are_Gastrointestinal_Stromal_Tumors.asp?rnav=cri). Accessed April 27, 2009.
- <sup>2</sup> American Cancer Society. What are the key statistics about gastrointestinal stromal tumors? Available at: [http://www.cancer.org/docroot/CRI/content/CRI\\_2\\_4\\_1x\\_What\\_Are\\_the\\_Key\\_Statistics\\_About\\_Gastrointestinal\\_Stromal\\_Tumors.asp?rnav=cri](http://www.cancer.org/docroot/CRI/content/CRI_2_4_1x_What_Are_the_Key_Statistics_About_Gastrointestinal_Stromal_Tumors.asp?rnav=cri). Accessed April 27, 2009.
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- <sup>4</sup> Gold JS, van der Zwan SM, Gonen M et al. Outcome of metastatic GIST in the era before tyrosine kinase inhibitors. *Ann Surg Oncol*. 2007;14(1):134-142.
- <sup>5</sup> Antonescu CR, Besmer P, Guo T, et al. Acquired resistance to imatinib in gastrointestinal stromal tumor occurs through secondary gene mutation. *Clin Cancer Res*. 2005;11:4182-4190.
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- <sup>8</sup> American Cancer Society. Do we know what causes gastrointestinal stromal tumors? Available at: [http://www.cancer.org/docroot/CRI/content/CRI\\_2\\_4\\_2x\\_Do\\_We\\_Know\\_What\\_Causes\\_Gastrointestinal\\_Stromal\\_Tumors.asp?rnav=cri](http://www.cancer.org/docroot/CRI/content/CRI_2_4_2x_Do_We_Know_What_Causes_Gastrointestinal_Stromal_Tumors.asp?rnav=cri). Accessed April 27, 2009.
- <sup>9</sup> National Comprehensive Cancer Network Task Force. NCCN Task Force Report: Optimal management of patients with gastrointestinal stromal tumor (GIST) – Update of the NCCN Clinical Practice Guidelines. *J NCCN* 2007; 5(Supp 2)
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- <sup>13</sup> Cancer.net. Gastrointestinal Stromal Tumor – GIST: Treatment. Available at: <http://www.cancer.net/patient/Cancer+Types/Gastrointestinal+Stromal+Tumor++GIST>. Accessed April 29, 2009.

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