Gastrointestinal stromal tumors (GISTs) are characterized by mutations in the KIT proto-oncogene that lead to abnormal expression of a protein, KIT receptor tyrosine kinase.

Multidisciplinary management of GISTs currently includes targeted therapy with the oral tyrosine kinase inhibitor imatinib.

Oncology nurses can help sustain the effectiveness of imatinib therapy by delivering individualized patient education that promotes understanding of the disease and its treatment.

Most GISTs (85%–95%) are driven by oncogenic mutations in either KIT or platelet-derived growth factor receptor alpha protein (PDGFRα). These gain-of-function mutations lead to the constitutive activation of the KIT and PDGFR receptors, which result in subsequent cell proliferation and the prevention of apoptosis (programmed cell death) (Fletcher et al., 2002). The observation that most GISTs express KIT or PDGFRα led to the development of the targeted oral therapy imatinib, a tyrosine kinase inhibitor (TKI) (Joensuu et al., 2002). Imatinib inhibits the constitutive activation of KIT and PDGFRα tyrosine kinase, which inhibits tumor growth and induces tumor regression (Hirota et al., 1998; Rubin et al., 2001).

At a Glance
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- Oncology nurses can help sustain the effectiveness of imatinib therapy by delivering individualized patient education that promotes understanding of the disease and its treatment.