Personalized Medicine testing recommendations for:

Gastrointestinal Stromal Tumors (GIST)

Newly Diagnosed and Recurrent Disease (somatic)

When and what should be tested?

- Treatment eligible
- Newly diagnosed
- Recurrent disease
- At time of initial diagnosis
- Tumor sample or blood

FDA/NCCN approved

- KIT Exon 11: imatinib 400mg daily
- KIT Exon 9: imatinib 800 mg daily
- Other KIT mutations
- PDGFRA D842V: avapritinib
- Other PDGFRA mutations: imatinib 400mg daily
- KIT and PDGFRA wildtype which are often SDH deficient
- For metastatic disease: BRAF V600E, NTRK, RET, TMB, dMMR,HER2

Emerging

- XPO1 (selenixor)
- Genome-wide somatic loss of heterozygosity (LOH)/"BRCAness"
- Baseline ctDNA as a predictive marker in advanced GIST
- NGS (in refractory, at least BRAF V600E, MSI, and RET should be tested
- MRD
- If all deficient (SDH-deficient GIST), recommend referral for germline testing

Informational Considerations

- KIT Exon 11 mutation
- KIT Exon 9 mutation (may be more likely to respond to higher dose of imatinib)
- PDGFRA Exon 18 mutations (including D842V) resistant to approved TKIs except for avapritinib and ripretinib
- SDH deficiency: lack of expression by IHC
  - SDH mutation testing for SDH deficient tumors
- If above is negative, alternative driver mutations may be playing a role
  - BRAF, NF1, NTRK, FGFR fusions

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