

Supplementary Materials

Table S1. Comparison of direct costs for NGS-based test and traditional platforms. A comparison of direct costs (including reagents, personnel hands-on time and consumables costs) for commonly tested markers like *BRAF*, *NRAS*, *KIT*, *JAK2* as analyzed by traditional platforms and a NGS test are listed below.

Gene	Assay Technique	Direct Cost (\$) *
<i>BRAF</i>	Pyrosequencing (Codon 600)	245.00
<i>NRAS</i>	Pyrosequencing (Codons 12,13 and 61)	261.13
<i>KIT</i>	Sanger Sequencing (Exons 9, 11, 13, 17)	419.35
<i>JAK2</i> (p. V617F)	Sanger Sequencing	277.07
<i>JAK2</i> (p. V617F)	Pyrosequencing	208.16
<i>50 gene panel</i> (including <i>BRAF</i> , <i>NRAS</i> , <i>KIT</i> , <i>JAK2</i>)	NGS (Ion Torrent PGM) 50-cancer related genes Hotspot mutations	574.20

* The direct costs include reagents, labor and consumables. They can vary -for each lab depending upon any discount rates extended by the vendor and personnel costs.

Table S2. Comparison of Analytical sensitivity of NGS to traditional sequencing and other NGS platforms. A comparison of the sensitivity of NGS platforms validated in our laboratory to other sequencing technologies as has been summarized.

NGS Panel	NGS Sensitivity Compared to				
	Sanger Sequencing	Pyro Sequencing	Primer Extension-Mass Array	NGS	MIP & Array (for CNVs)
<i>46 gene</i> (<i>Ion Torrent-PGM</i>)	96% *	100%	100%	NA	NA
<i>53 gene panel</i> (<i>MiSeq</i>)	100%	100%	NA	100% #	NA
<i>409 gene panel</i> (<i>Ion Proton</i>)	100%	NA	NA	95% \$	100%

* Missed large insertions and deletions due to variant caller issues. Fixed by upgraded version of the software; # As compared to 46 gene panel on Ion Torrent PGM; \$ As compared to 46 gene panel using Ion Torrent PGM. Missed calls were due to failed sequencing or lack of sequencing coverage in the 409 gene panel; & MIP Array (OnoScan Molecular Inversion Probe array, Affymetrix).