

Cancer Resequencing on Roche GS FLX

>> World's Highest Fidelity DNA Polymerase for PCR



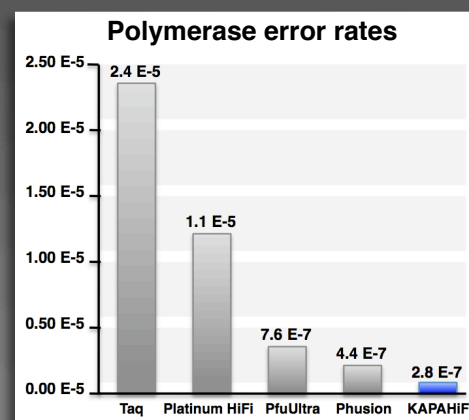
The lower error rate and higher yields of KAPAHiFi™ DNA Polymerase:

>> Decreased false positive mutations and increased coverage

>> Error rate of 2.8×10^{-7} is 100x more accurate than Taq - the highest fidelity PCR polymerase available as confirmed by next-gen sequencing

KAPAHiFi™ and Invitrogen Platinum® Taq High Fidelity were each used to generate amplicons for a cancer resequencing project using the Roche GS FLX sequencer*. 90 PCR amplicons, covering 5 candidate genes from 24 tumors, were generated using each enzyme. The resultant PCR products were concentration normalized and pooled for sequencing.

	KAPAHiFi™	Platinum® Taq High Fidelity
Type of Enzyme	Single engineered polymerase with strong proofreading activity	Blend of wild-type Taq polymerase and wild-type proofreading polymerase
Total Bases Sequenced	17,724,794	7,273,424
Bases Amplified/PCR Error	3,544,959	89,795
Error Rate	2.82 E-07	1.11 E-05



*Data courtesy of Dr. Phillip Buckhaults, University of South Carolina

The data set for KAPAHiFi™ covered ~17.7 million raw sequenced bases revealing 20 unique SNPs and 5 unique PCR-induced errors. The data set for Platinum® Taq High Fidelity covered ~7.2 million raw sequenced bases revealing the same 20 SNPs and 81 unique PCR-induced errors.

The error rate of KAPAHiFi™ is calculated at 1 error in 3.54×10^6 bases covered (2.82×10^{-7}) compared to 1 error in 8.98×10^4 bases covered (1.11×10^{-5}) with Platinum® Taq High Fidelity. The lower error rate and higher yield of KAPAHiFi™ leads to significantly less false positives and increased coverage. The error rate of KAPAHiFi™ is 100x lower than Taq polymerase, 40x lower than polymerase blends such as Platinum® Taq High Fidelity, 3x lower than Pfu Ultra, and 2x lower than Phusion.



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