DNA Resequencing								
	Quality Control	Alignment	Recalibration Deduplication Realignment	SNV Calling	SV Calling	Variant Annotation and Analysis		
SeqPig Crossbow SeqInCloud CSGP Workflow SEAL CloudBurst CloudAligner SeqWare BlueSNP								
			DNA coa	~				
RNA-seq								
	Quality Control	Alignment	Transcript Identification	Differential Expression Analysis	Pathway and Gene Set Analysis	SNV Calling		
SeqPig FX Myrna Eoulsan YunBe		 						
Kim et al. 2011								

de novo Assembly							
	Quality Control	k-mer Counting	Error Correction	Assembly			
BioPig Quake Contrail CloudBrush		-					

Native MapReduce Algorithm ———

Use of Hadoop to parallelize ----pre-existing tools

APIs, Toolkits, and Scripting Frameworks

BioPig SeqPig Hadoop-BAM FASTA I/O, BAM I/O, k-mer API, Wrappers for Assemblers FASTA/Q I/O, BAM I/O, Alignment API

BAM I/0, Alignment API