

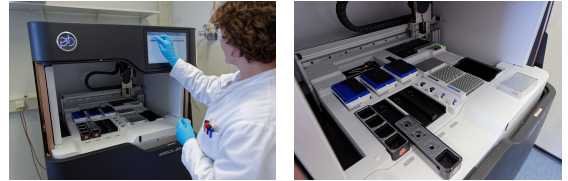
## Pacbio Sequel

<https://search.researchequipment.wur.nl/SearchDetail.aspx?deviceid=15527604-fd8a-4d40-92ec-bbe23b58bfee>

### **Brand**

Pacific Biosciences

### **Type**



### **Contact**

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### **Organisation**

Plant Sciences Group

### **Department**

Bioscience

### **Description**

Nowadays the sequel is the most cost-effective and high-throughput access to Single Molecule Real Time (SMRT) sequencing. The Sequel System is ideal for projects such as rapidly and cost-effectively generating high-quality whole genome de novo assemblies. In addition the Sequel system is ideal for full length whole transcriptome analysis for alternative splice variant detection.

### **Technical Details**

The new Sequel System is based on the Single Molecule Real-Time (SMRT) sequencing technology, successfully applied on the Pacbio RS-II system for many years. SMRT sequencing is built upon two key innovations that overcome major challenges in the field of sequencing. SMRT cells, containing 1 million ZMW wells, allow light to illuminate only at the bottom of hundreds of thousands of well, in which a single DNA polymerase/template complex is immobilized in parallel. Sequence reads are obtained by real time detection of phospho linked fluorescently labelled nucleotides as the DNA polymerase produces a completely natural DNA strand of each individual template molecule. This technique results in 300,000 to 500,000 reads per SMRT cell, with average read length > 10 Kb. SMRT sequencing is free of systematic errors, resulting in the highest consensus quality of any sequencing technology up to date.

### **Applications**

- Construction of high-quality whole genome de novo assemblies of eukaryotic organisms
- Survey of genomic variation in complex populations on any size scale
- Full-length complete transcriptome analysis
- Detection of epigenetic modifications