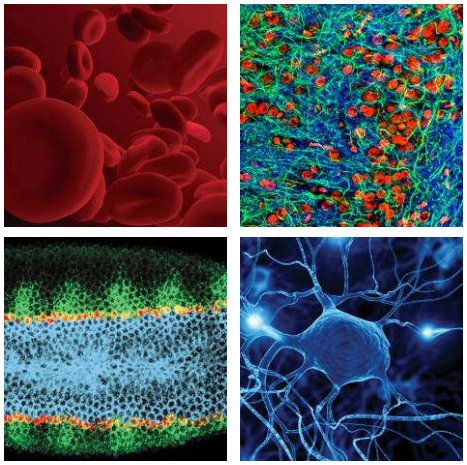
Exhibit I



Single Molecule Real-time DNA Sequencing on the Surface of a Quantum-dot Nanocrystal

Feb 27, 2010
AGBT Meeting, Marco Island FL

Joseph M. Beechem
Chief Technology Officer,
Head of Advanced Research,
Single Molecule Sequencing

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Life Technologies Single Molecule Sequencing System

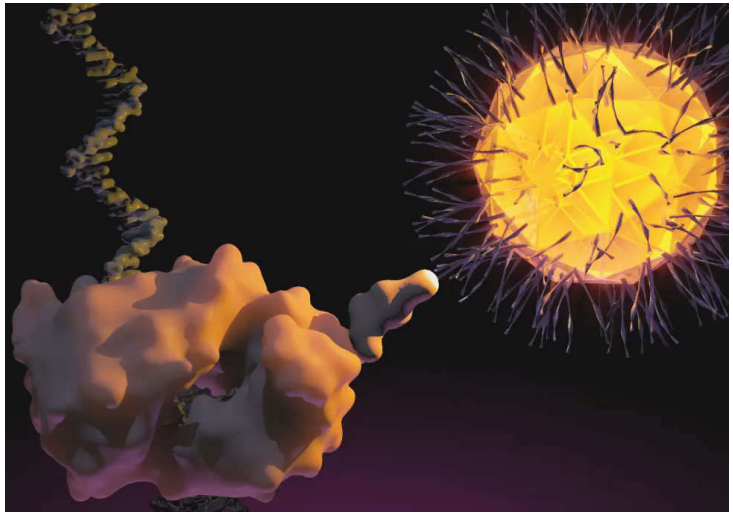
Portable nanometer-sized sequencing engine

That enables

Continuous long read lengths

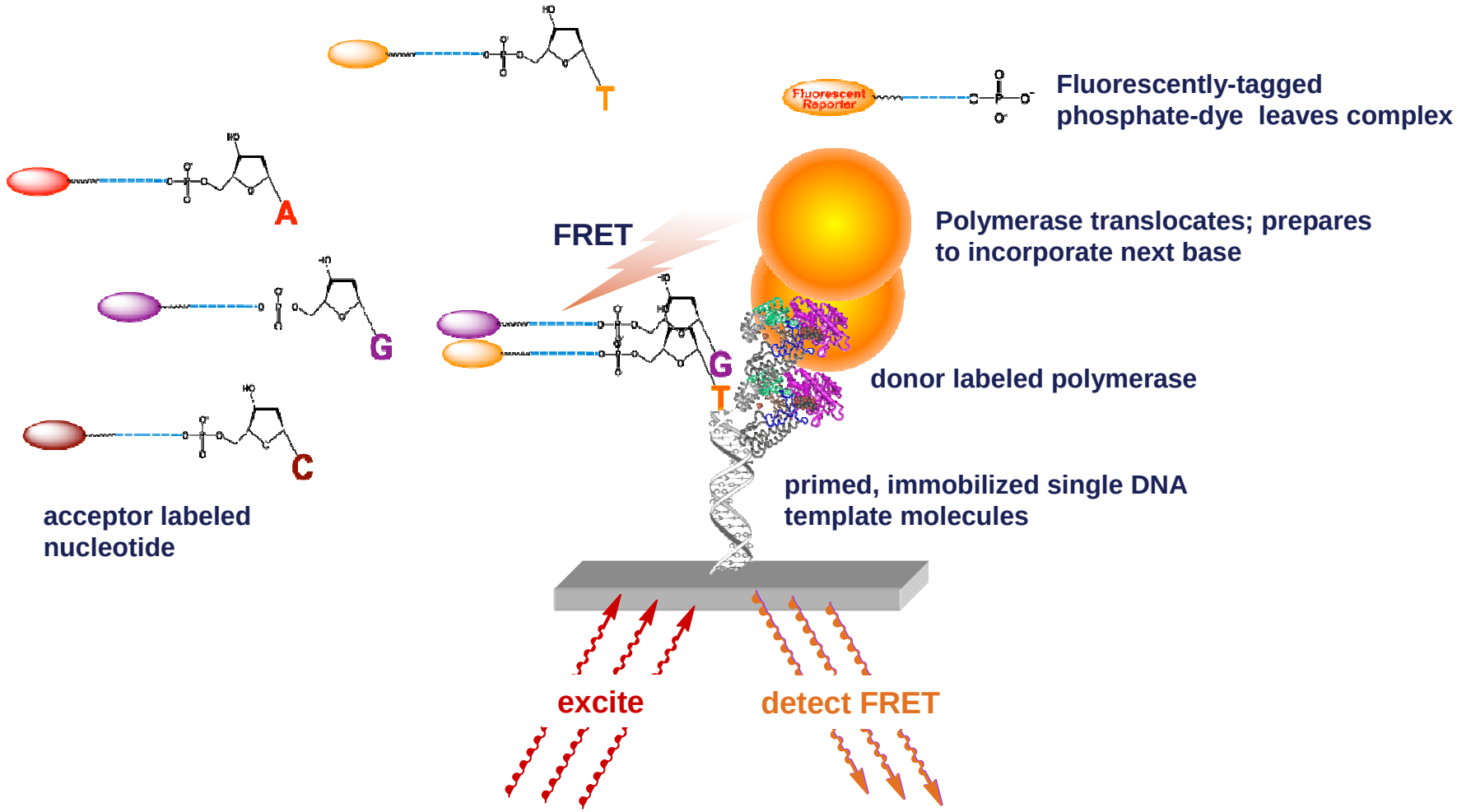
And

High accuracy



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Single Molecule Sequencing on Surface of Quantum Dot Nanocrystal

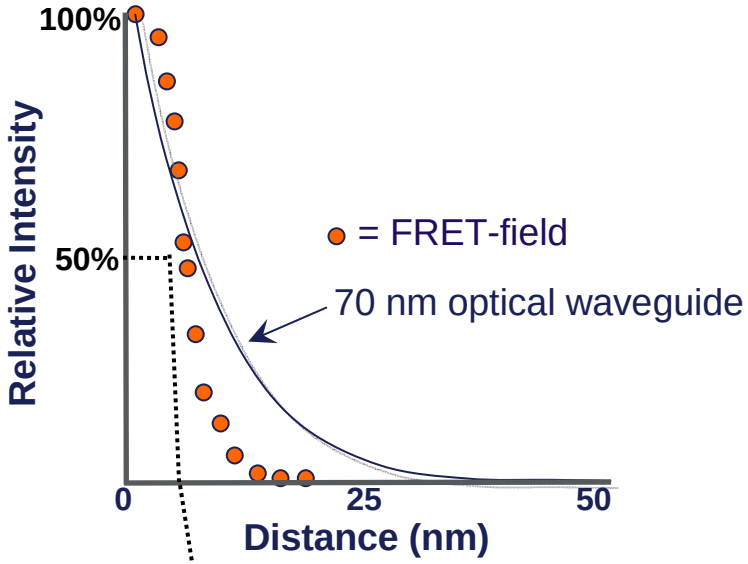


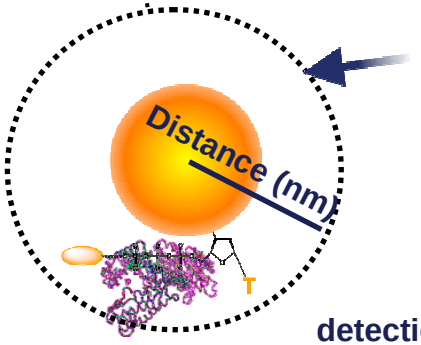
(use movie-based introduction here, if possible)

File = Qdot_Single_Molecule_Sequencing_Introduction.mov

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FRET-Based Spectroscopic Approach: Superior to Physical Confinement



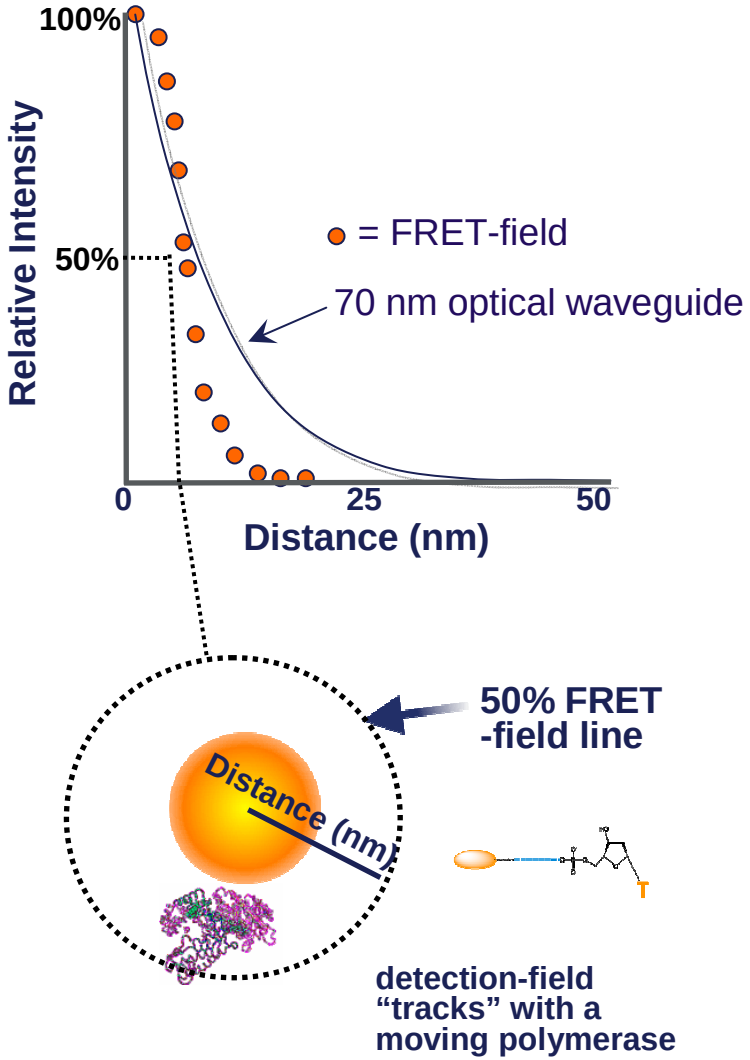


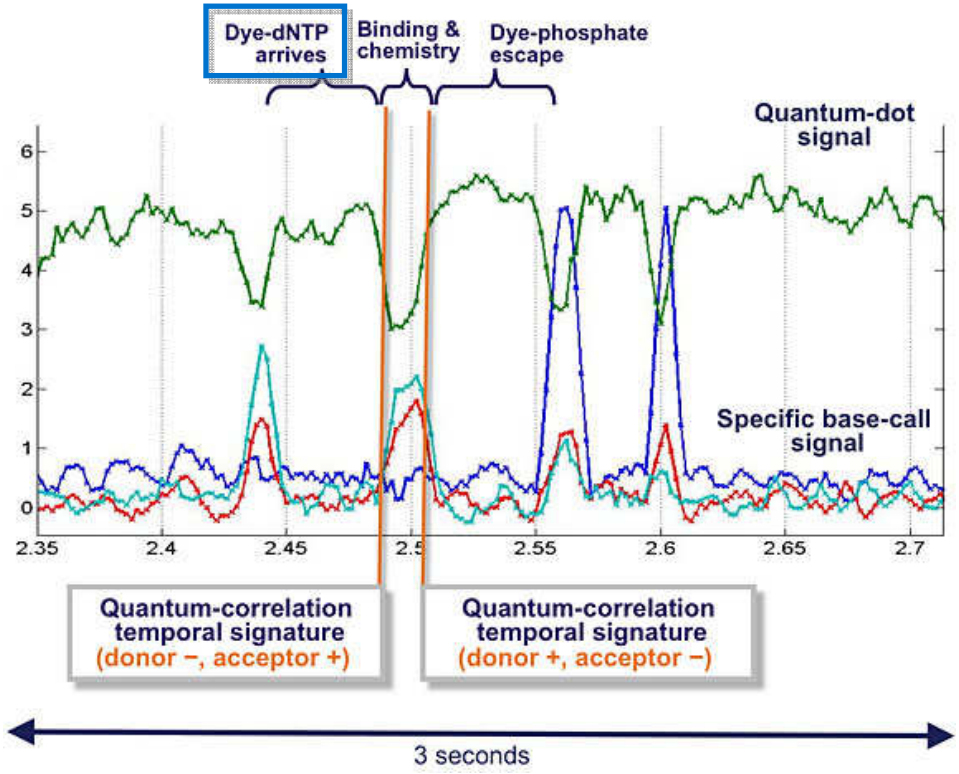
50% FRET -field line

detection-field "tracks" with a moving polymerase

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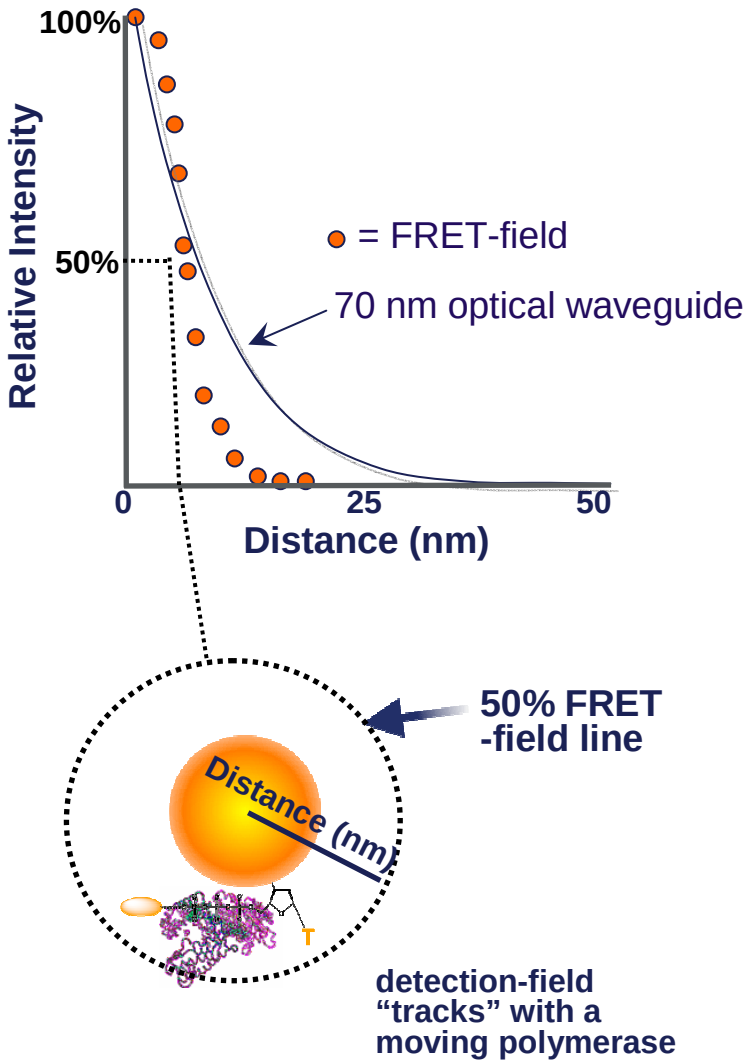
FRET-Based Spectroscopic Approach: Superior to Physical Confinement

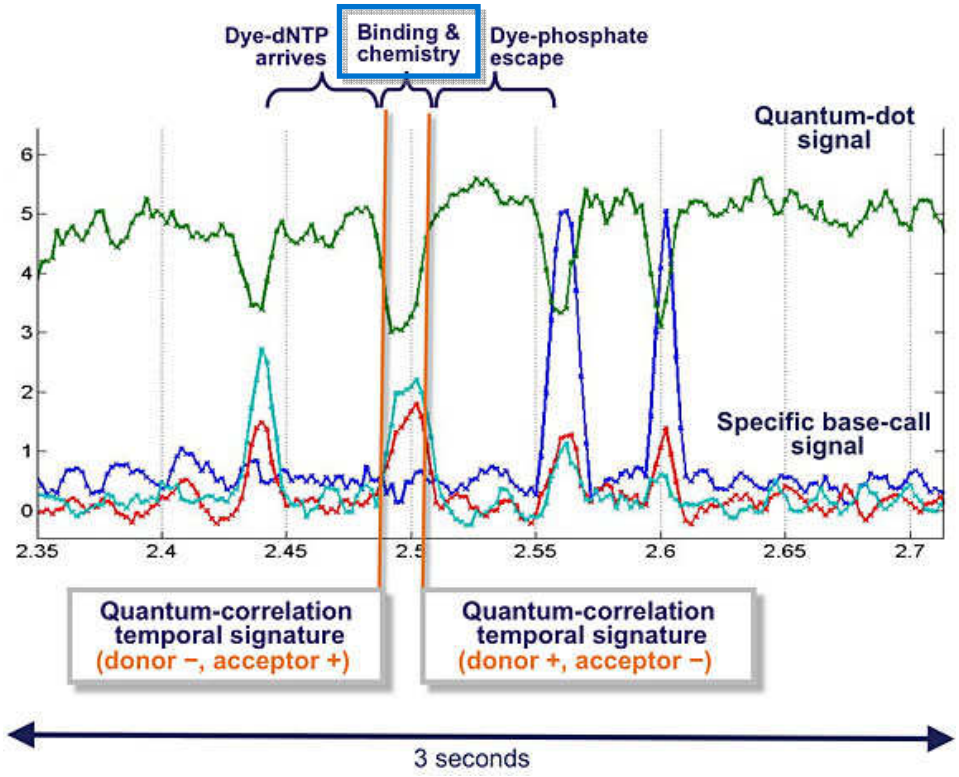




Superior Confinement AND a New Sequencing Signal

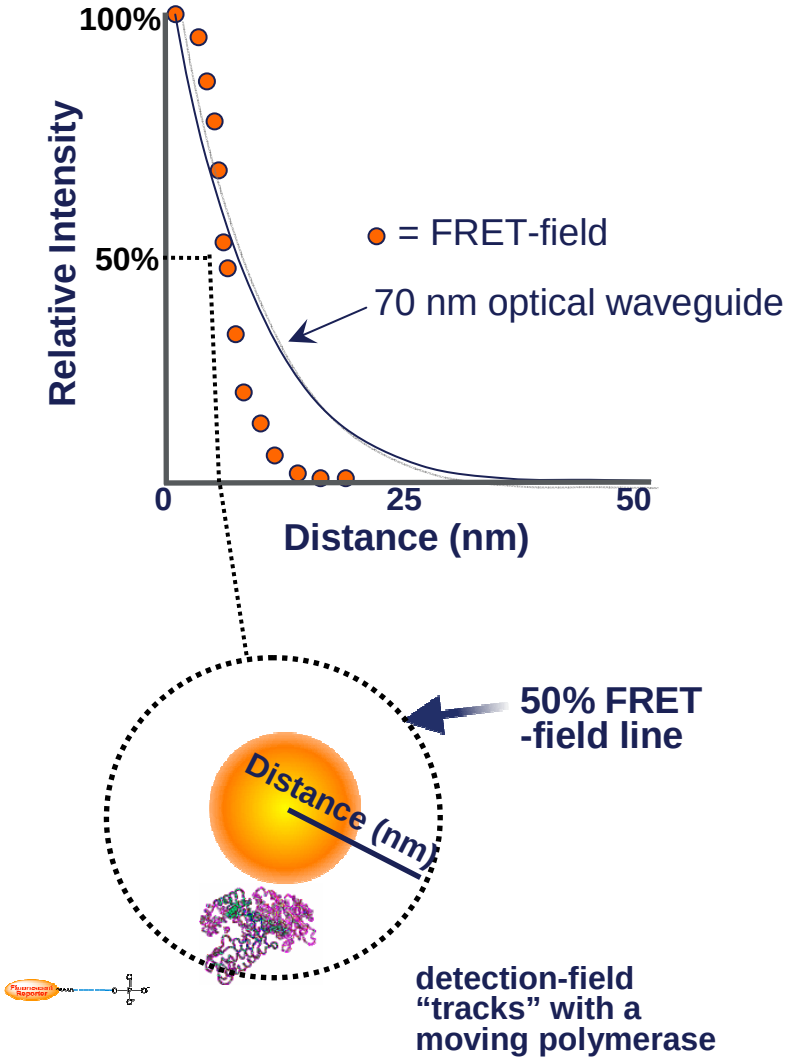
FRET-Based Spectroscopic Approach: Superior to Physical Confinement

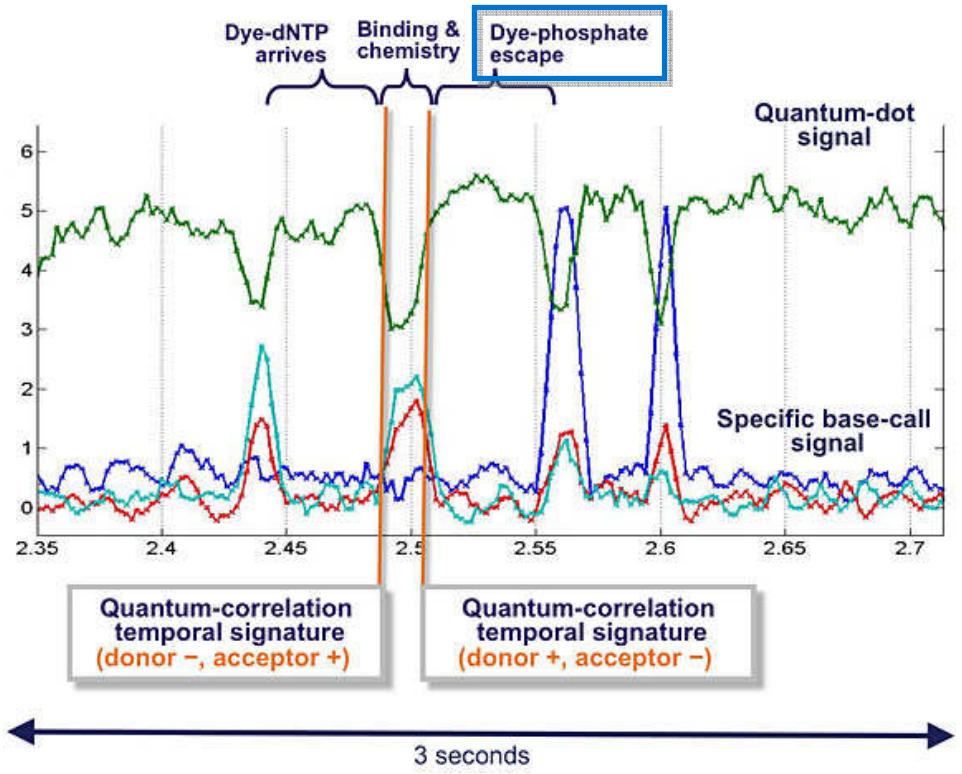




Superior Confinement AND a New Sequencing Signal

FRET-Based Spectroscopic Approach: Enhanced Base Calling Accuracy

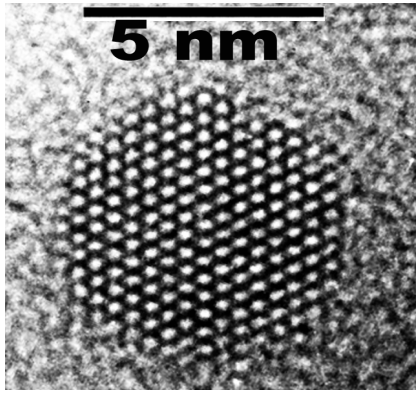


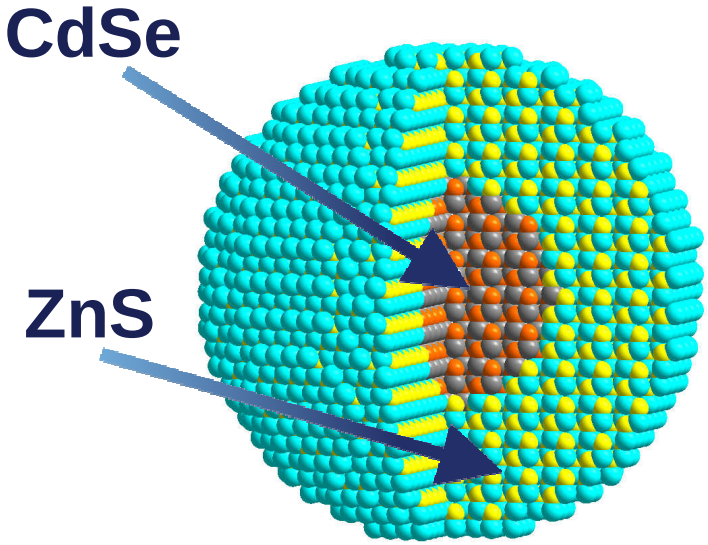


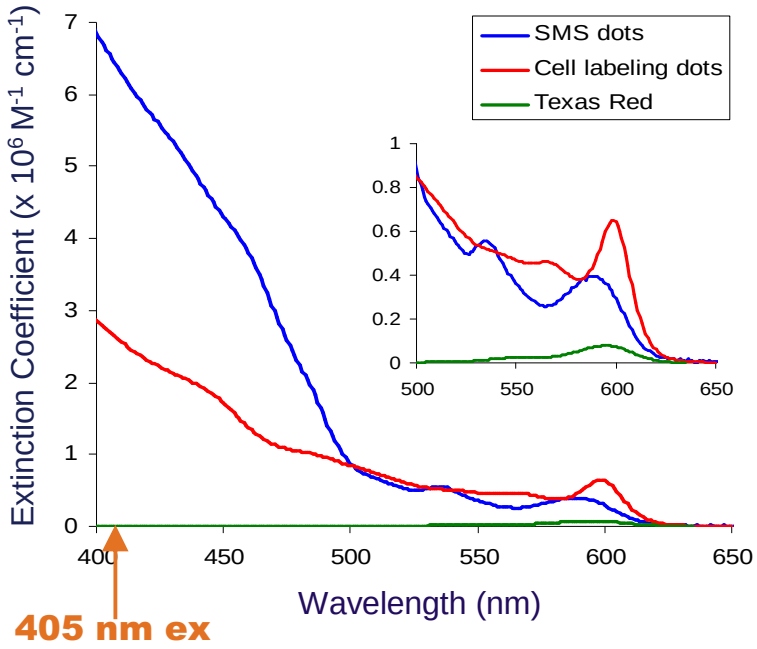
Superior Confinement AND a New Sequencing Signal

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New Qdot® Nanocrystals Designed Specifically for Single Molecule Sequencing





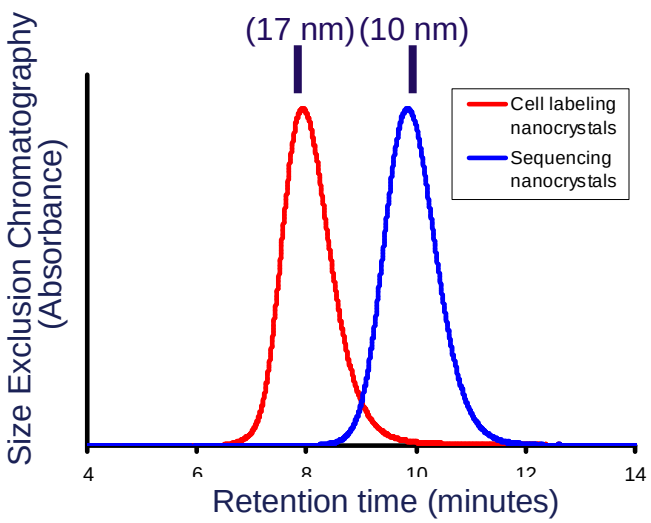


- 100X absorbance of a good organic dye
- Quantum yield of emission = 1.0
- Very photostable
- ~ 200X fluorescence signal

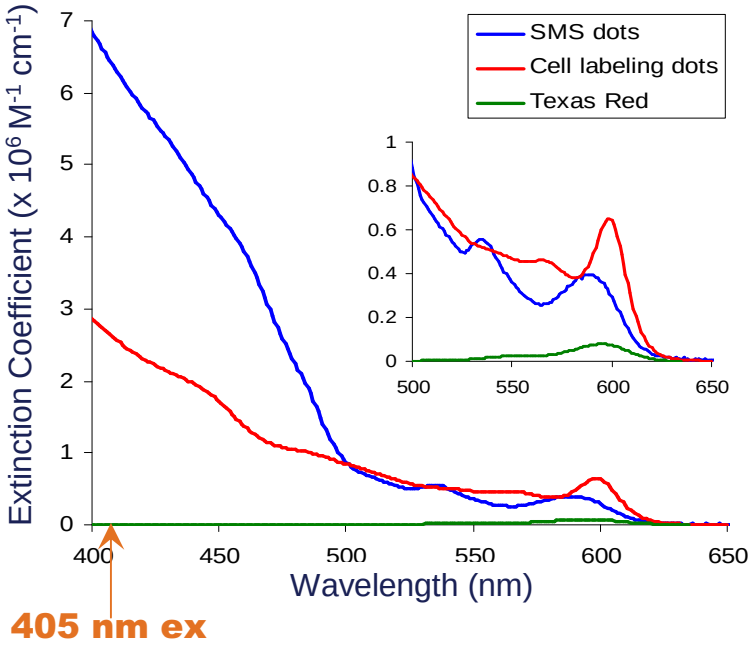
In "class-of-its-own" vs other SMS fluorophores (nothing else even close)

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New Qdot® Nanocrystals Designed Specifically for Single Molecule Sequencing



½ the size of our cell labeling reagents



Double the FRET Efficiency

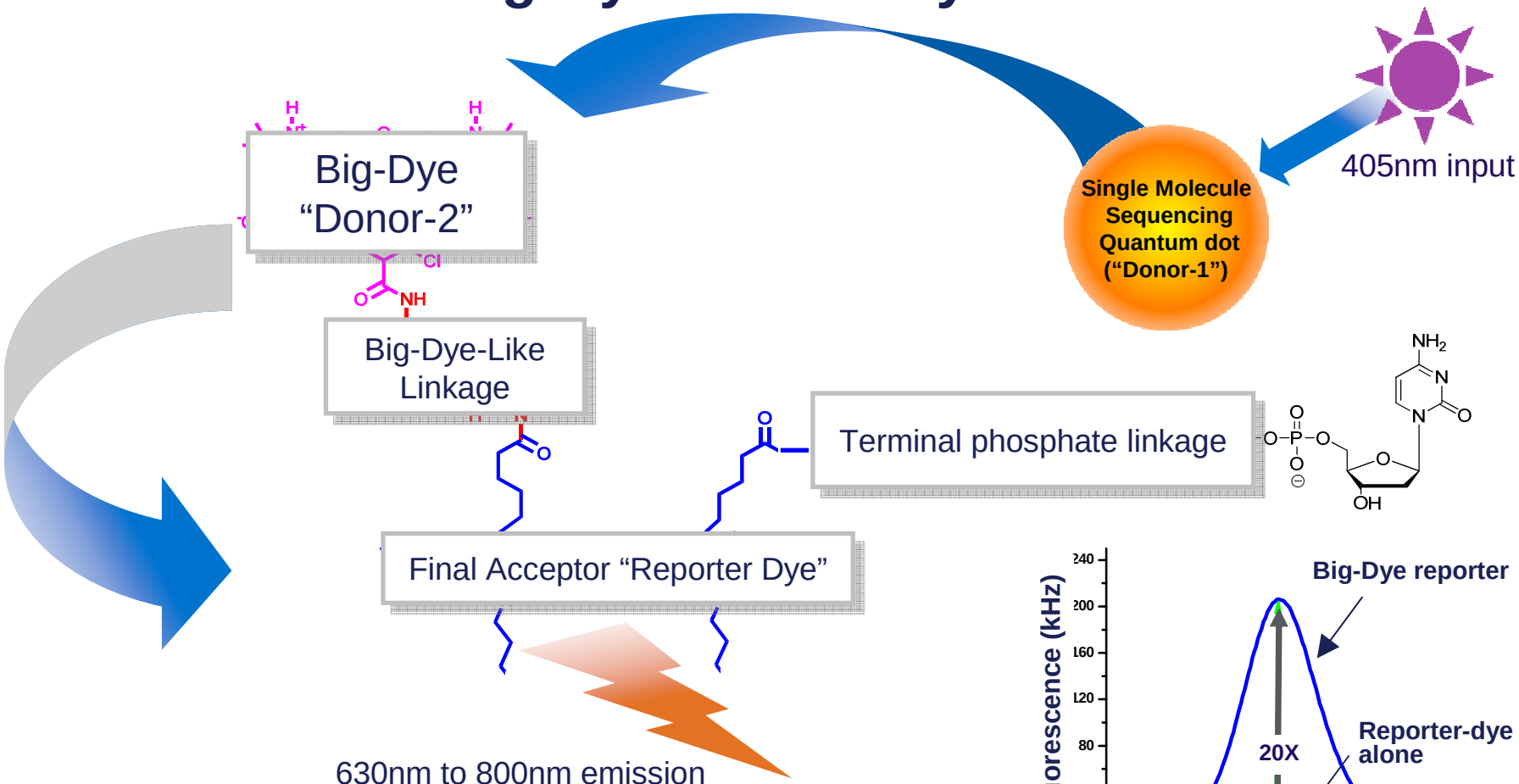
~ 200X signal

Together

Single Molecule Sequencing, but with MUCH larger signal levels

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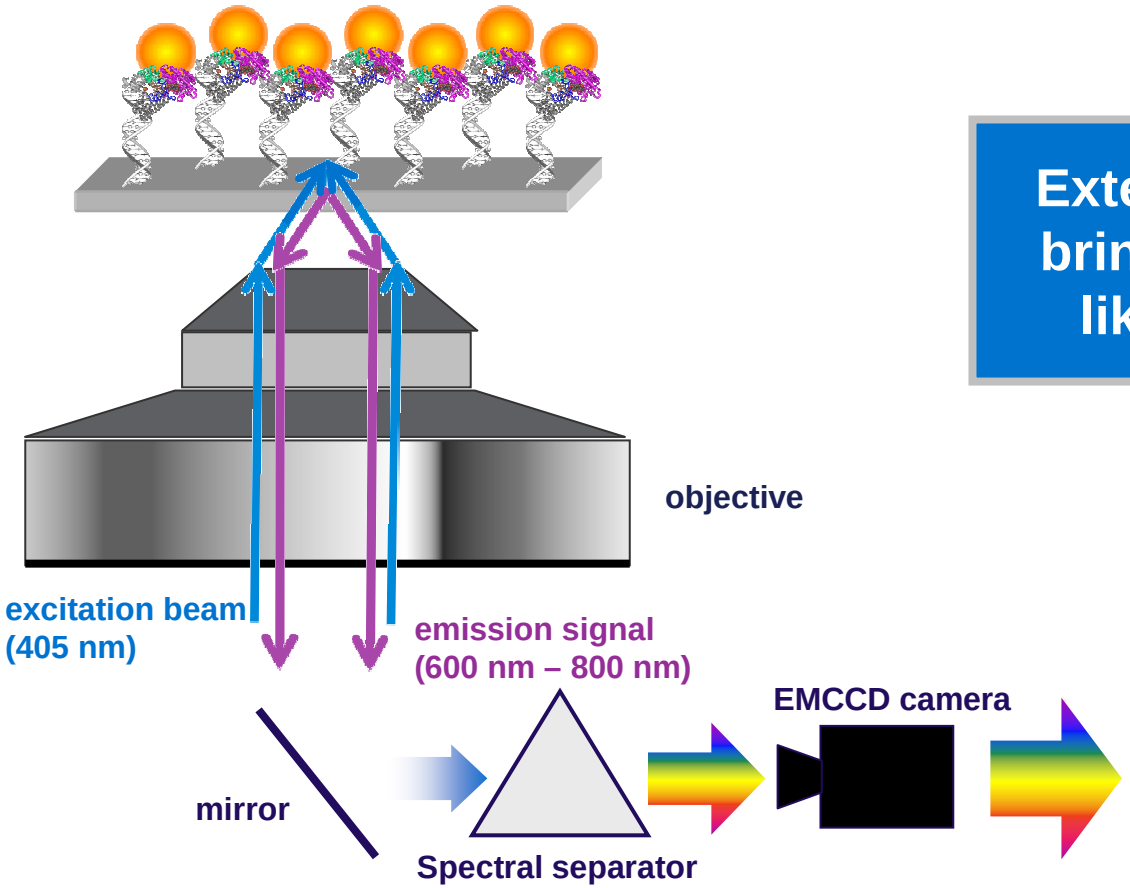
Leverage Best-in-Class Molecular Probes Dyes and Robust/Mature Big-Dye Chemistry



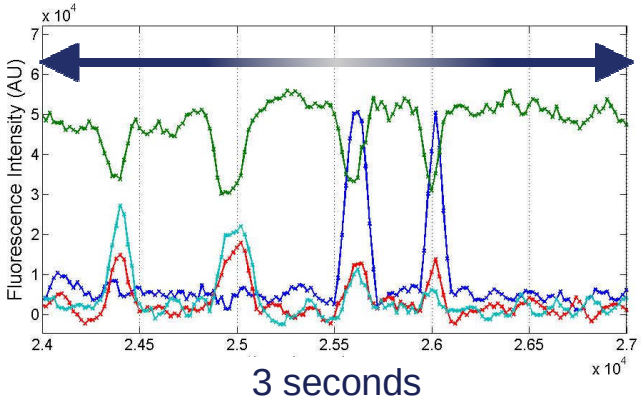
Simplified instrumentation: Single-laser, all 4 bases sequenced, near-zero background in deep-red

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Simple Single Laser Instrumentation With Simultaneous 5 Color Sequencing

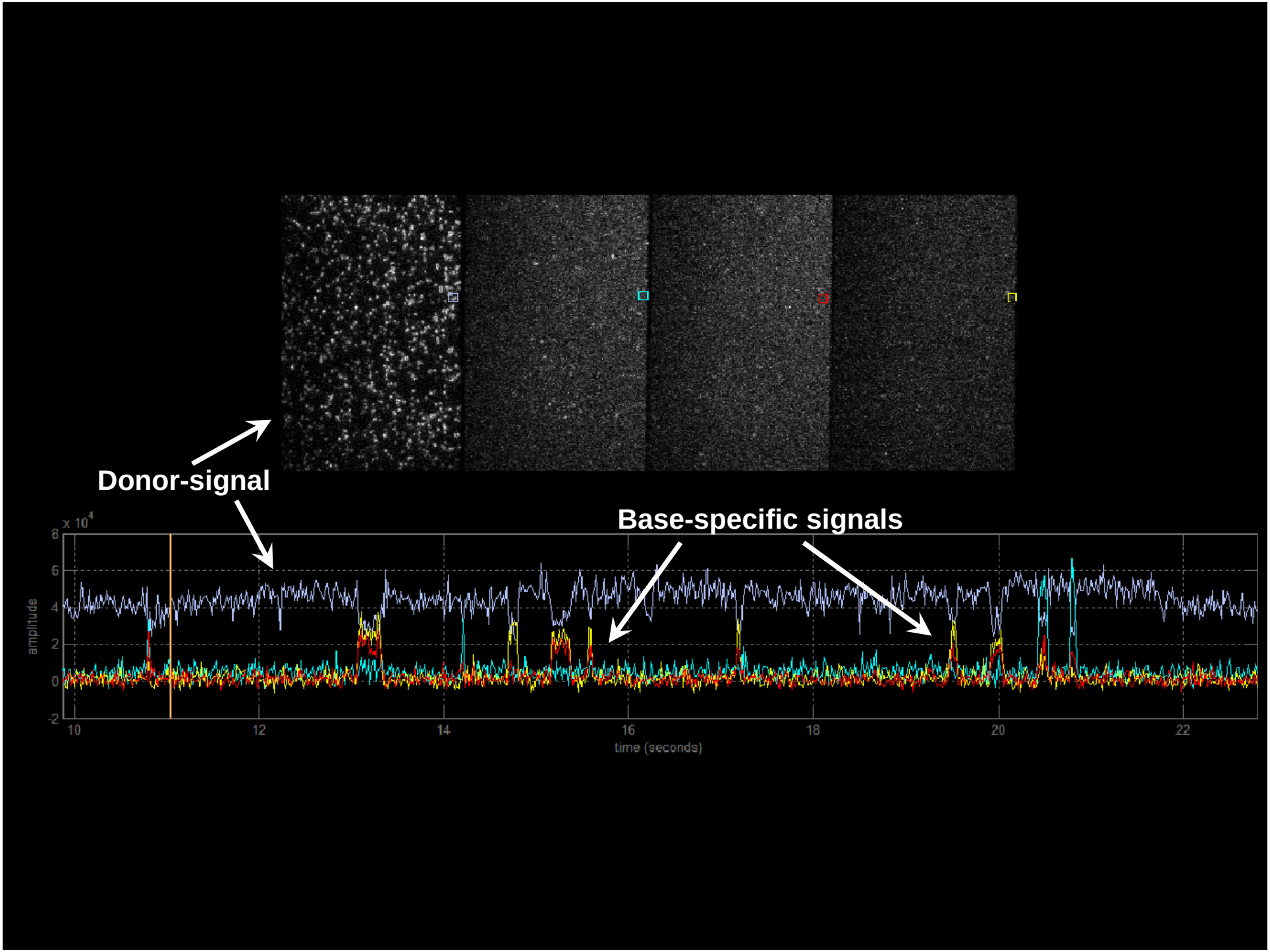


Extensive experience bringing instruments like this to market



3 seconds

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Donor-signal
Base-specific signals
x 10^4
8
6
4
2
0
-2
amplitude
10
12
14
16
18
20
22
time (seconds)

Donor Plus 4-Bases (5-colors) in 4-Channels

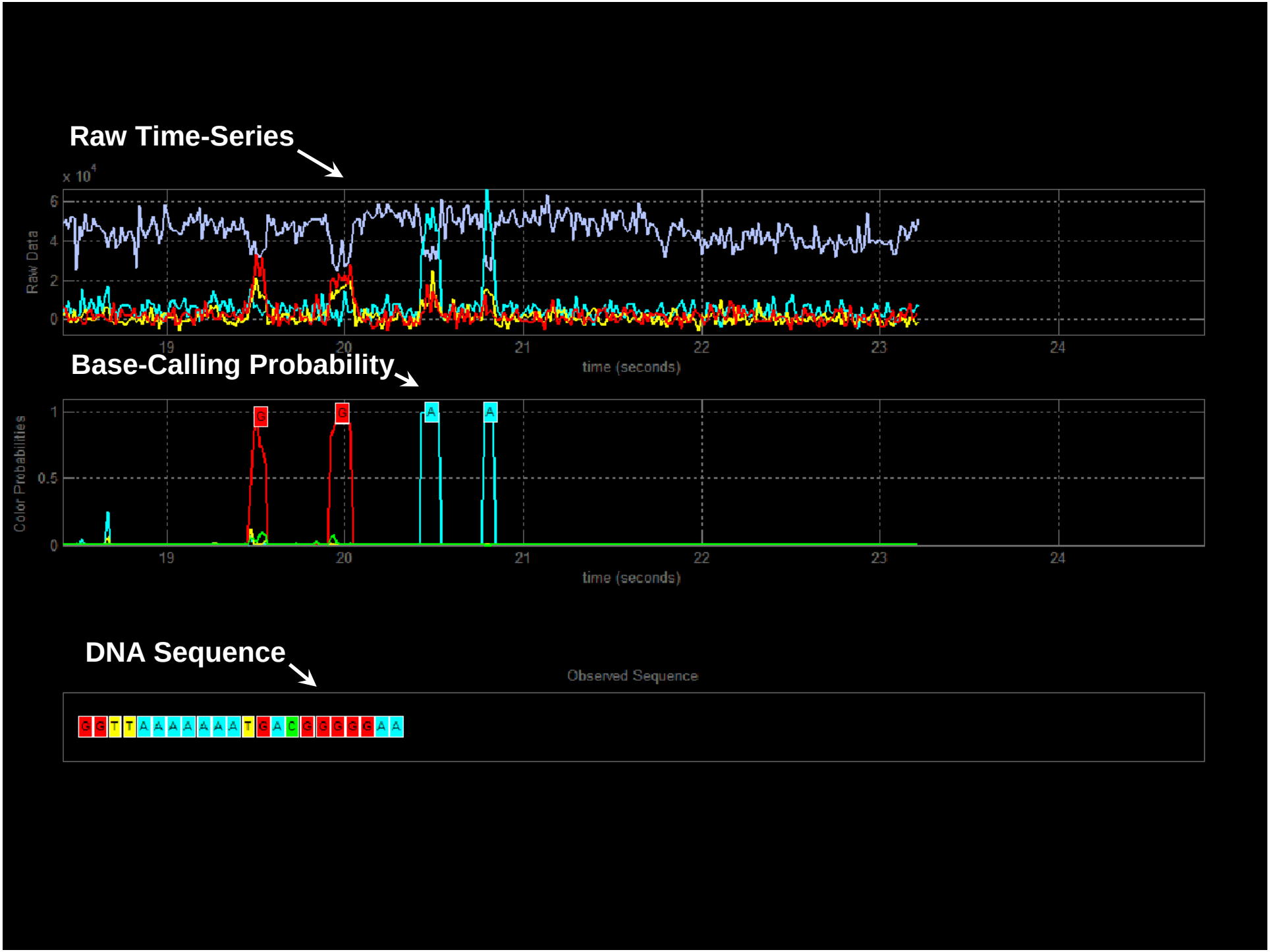


Movie File = Real_Time_Raw_Time_Series.avi

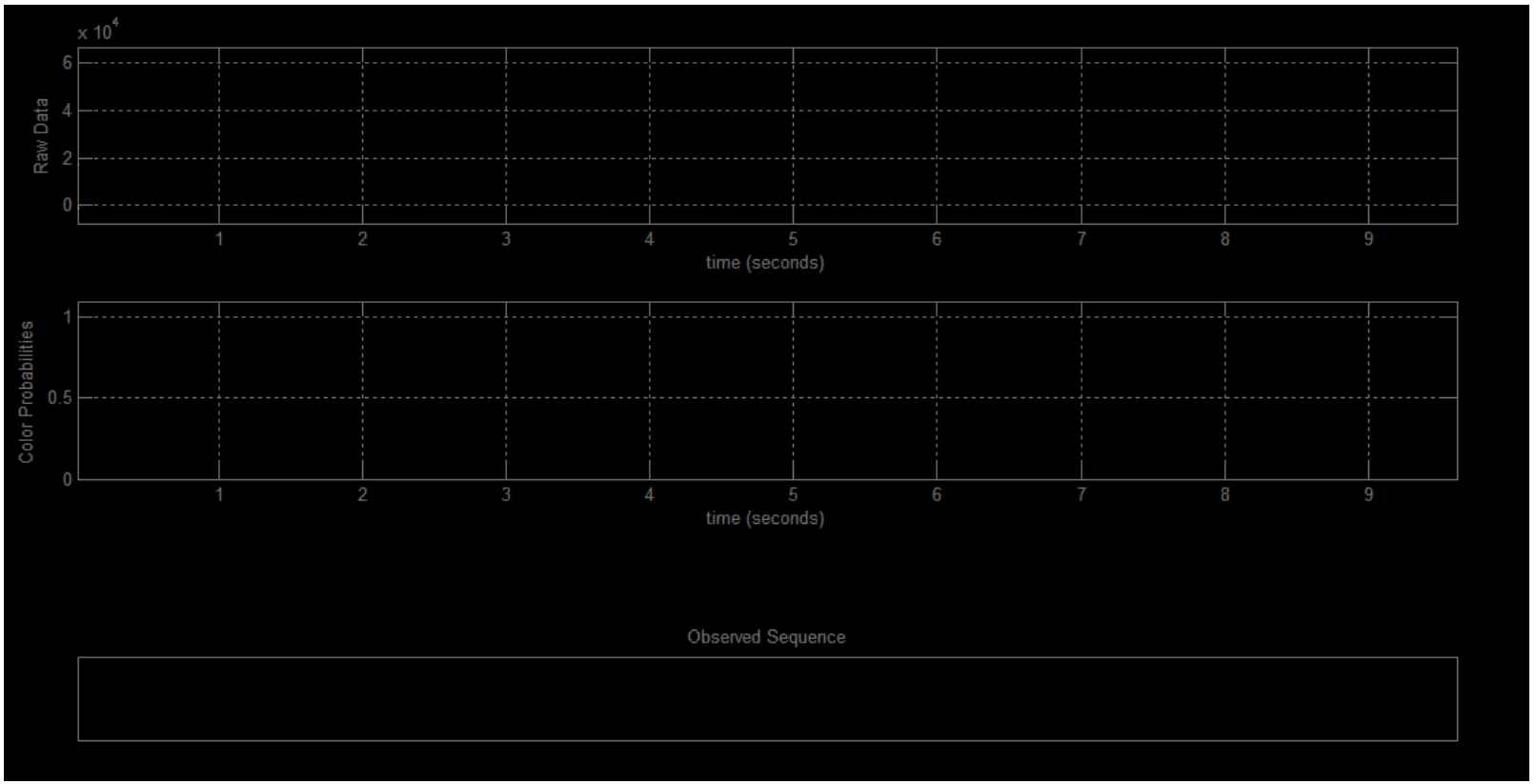
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From Raw Time Series to Base Calls…

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Raw Time-Series
x 10^4
Raw Data
6
4
2
0
19
20
21
22
23
24
time (seconds)
Base-Calling Probability
Color Probabilities
1
0.5
0
C
G
A
A
19
20
21
22
23
24
time (seconds)
DNA Sequence
Observed Sequence
C G T T A A A A A A A A T G A C G G G G A A

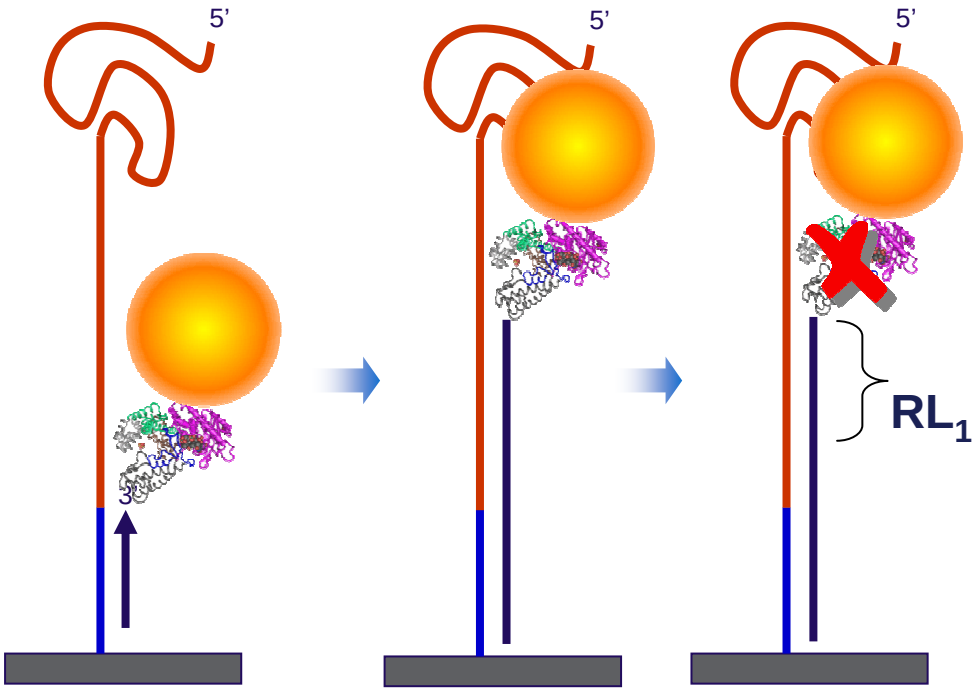
Base-Calling From Raw Time-Series…



Movie File = Real_Time_Base_Calls.avi

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Inactive Sequencers (x) Can Limit Read Length



Read-length = fundamental read length

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