Rainbow probes: universal detection of DNA for digital PCR

What are Rainbow™ probes?

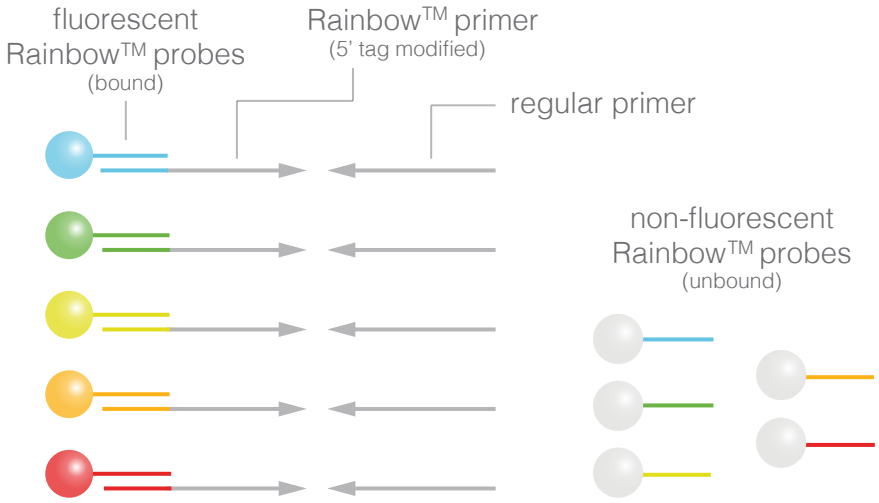
Rainbow probes are patent-pending fluorescent nucleic acid detection probes that eliminate the need for designing and optimizing target-specific probes. Here's how they work:

- **Modify existing primers**

  We transform one of your existing PCR primers (from a pair) into a Rainbow™ primer by modifying the oligonucleotide. This modified primer allows the Rainbow™ probe to detect the amplicon.

- **Multiplex capability**

  With 2 to 8 Rainbow™ probes (depending on your digital PCR instrument), you can quantify multiple targets simultaneously (multiplex reaction). Perfect for applications requiring numerous probes or small probe quantities.



Benefits

- **+ Time saving**

  No design and optimization of probe sequences required; fast as probes are delivered off the shelf.

- **+ Cost efficient**

  Use the same probe for different targets, minimizing unused stock.

- **+ High sensitivity (1)**

  Rainbow probes are 60X concentrated, enabling efficient and sensitive multiplexing by accommodating large sample input volume in the reaction.

- **+ High sensitivity (2)**

  No sequence space needed for a probe, allowing ultrashort amplicons, increasing analytical sensitivity when working with fragmented nucleic acids from e.g. FFPE tissue or liquid biopsy.

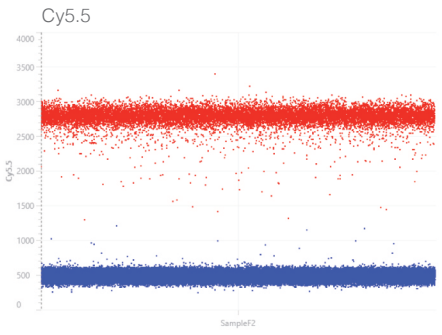
Available Rainbow™ probes

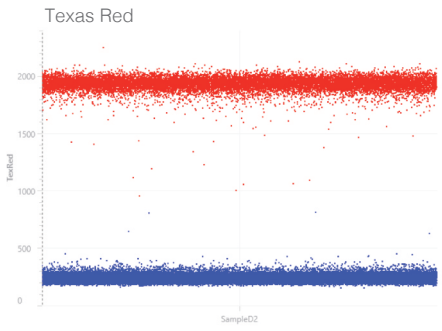
probe name	*primer tag*	*fluorophore*	*emission max (nm)*	*compatible instruments*
RBO-01-A-425	A	ATTO 425	484	Digital LightCycler, DQ24
RBO-01-B-FAM	B	FAM	517	QX200, QX ONE, QX600, QIAcuity, naica 3, naica 6, Nio, Digital LightCycler, DQ24, QuantStudio Absolute Q
RBO-01-C-YAK	C	Yakima Yellow	550	naica 6, Nio
RBO-01-C-HEX	C	HEX	559	QX200, QX ONE, QX600, QIAcuity, naica 6, Digital LightCycler, DQ24, QuantStudio Absolute Q
RBO-01-A-550	A	ATTO 550	574	QIAcuity, naica 6, Nio, QuantStudio Absolute Q
RBO-01-D-TEX	D	Texas Red	603	QIAcuity, Digital LightCycler
RBO-01-D-ROX	D	ROX	604	QX600, QIAcuity, naica 6, Nio, DQ24
RBO-01-A-590	A	ATTO 590	621	QX600
RBO-01-F-CY5	F	Cy5	670	QX ONE, QX600, QIAcuity, naica 3, naica 6, Nio, Digital LightCycler, DQ24, QuantStudio Absolute Q
RBO-01-G-C55	G	Cy5.5	703	QX ONE, QX600, Digital LightCycler, DQ24
RBO-01-G-700	G	ATTO 700	715	naica 6, Nio

Representative 1-color plots

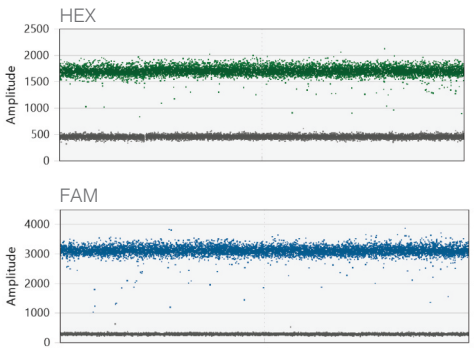
Below are representative 1-color singleplex results using different Rainbow™ probes on different digital PCR instruments. Each time, a BRAF V600E wild type assay was used with sheared human genomic DNA as input (0.7 copies per partition (λ), resulting in an equal number of positive and negative partitions).

Roche Digital LightCycler

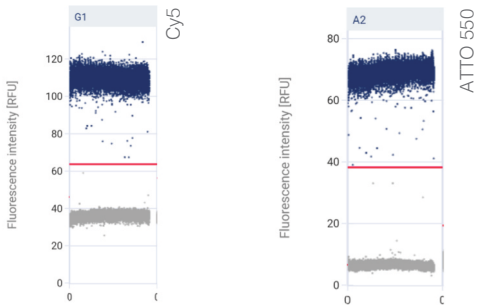




Bio-Rad QX200



Qiagen QIAcuity



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