

## *Label* IT Nucleic Acid Labelling Kits

- **Label Any DNA or RNA Template** - Suitable for a wide range of applications.
- **One-step Chemical Method** - Easily and consistently control the labelling reactions.
- **Adjustable Labelling Density** - Achieve high sensitivity with optimally labeled DNA and RNA.
- **Covalent Mechanism** - Permanent, non-destructive modification of nucleic acid residues is ideal for many diverse applications; labels do not impact hybridization performance.

Kit Components:

Each Kit contains a *Label* IT Reagent, *Label* IT Reconstitution Solution, 10X Labelling Buffer and solutions.

Note: All the *Label* IT® Reagents use the same technology, but each attaches different fluorophores with distinct excitation and emission spectra.

## Data

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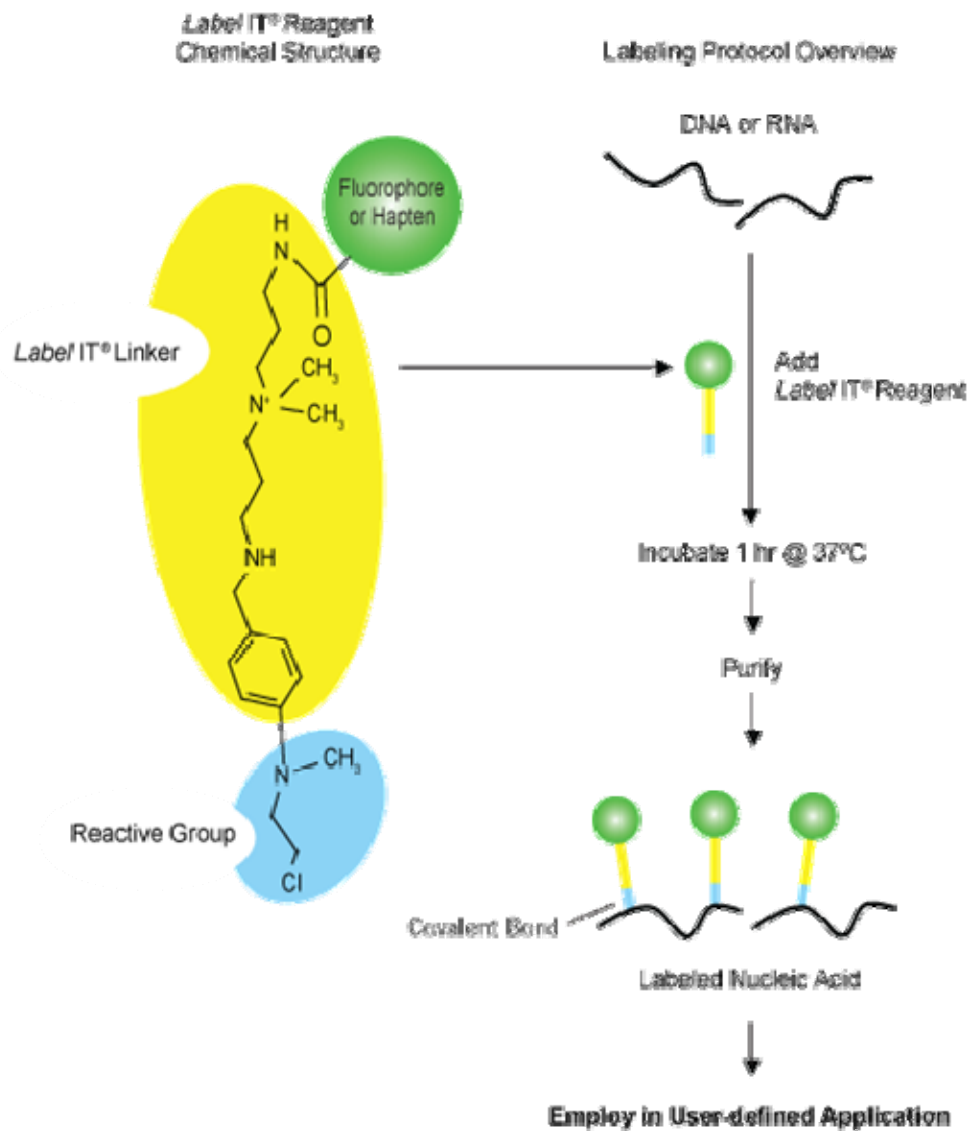
**Figure 1:** The *Label* IT Nucleic Acid Labelling Kits.

**Figure 2:** Non-destructive Direct Labelling of RNA.

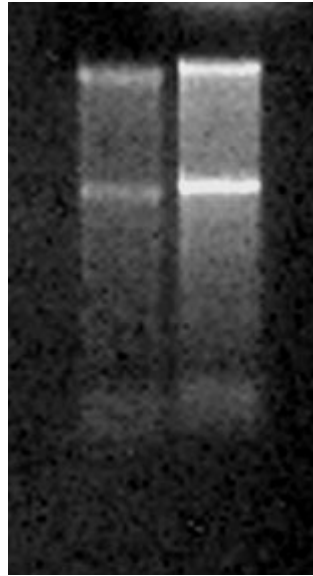
**Figure 3:** Generation of Sensitive FISH Probes.

**Figure 4:** Labelling Density can be Easily Controlled with the *Label* IT Reagents.

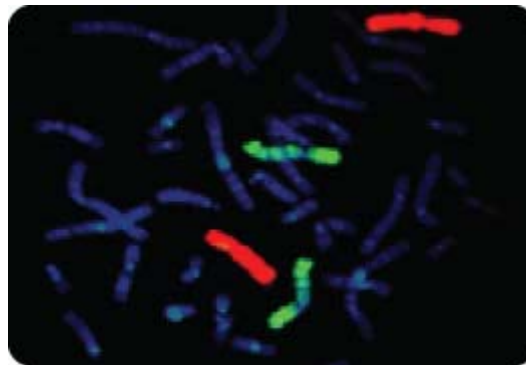
**Figure 5:** Excitation and Emission Wavelengths of Fluorescent *Label* IT Reagents.



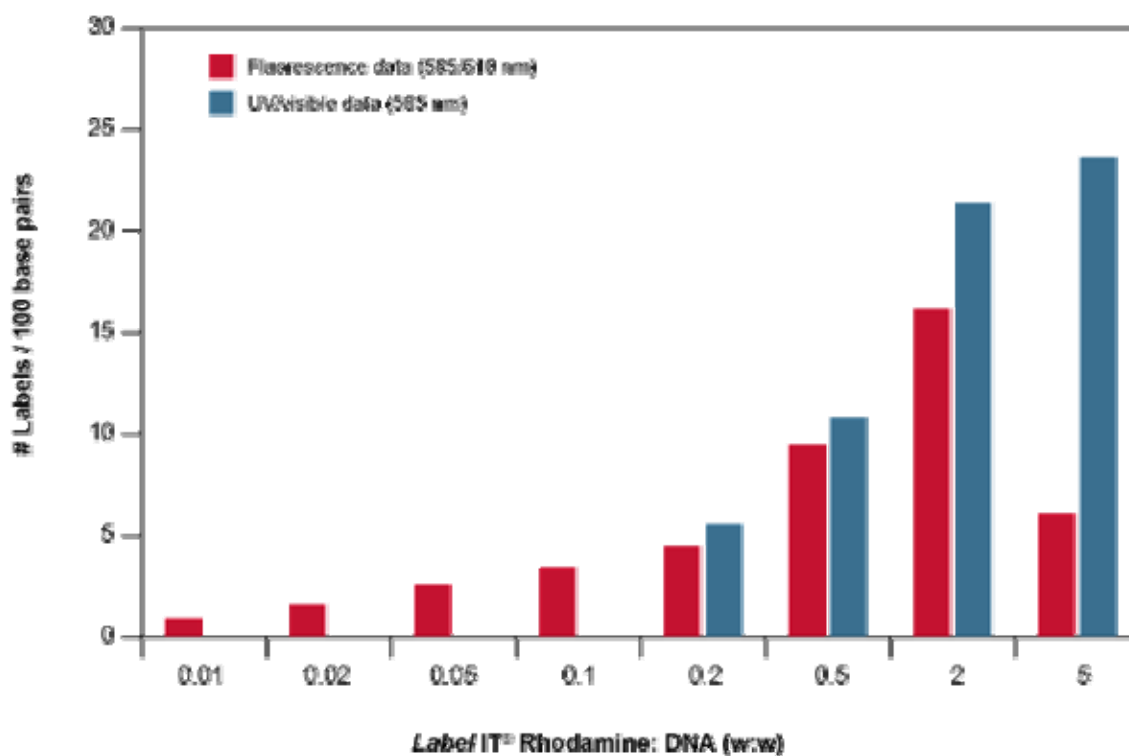
**Figure 1. The *Label IT*® Nucleic Acid Labelling Kits.** The *Label IT* chemical labelling reagents are composed of three regions: the label (fluorophore or hapten) (green), the linker (yellow) which facilitates electrostatic interactions with nucleic acids and the reactive alkylating group (blue) that covalently attaches the *Label IT* reagent to any reactive heteroatom within the nucleic acids. Attachment of the *Label IT* Reagents to nucleic acids does not alter the structure of the nucleic acid or affect downstream hybridization performance, and as such, nucleic acids labeled using the *Label IT* Reagents can be employed in multiple applications as defined by the researcher



**Figure 2. Non-destructive Direct Labelling of RNA.** Mouse total RNA was labeled with the *Label IT*® Fluorescein Reagent and resolved, alongside unlabeled total RNA, on a 1% agarose gel without ethidium bromide. The left panel illustrates the fluorescein signal from the labeled RNA in the unstained gel. The right panel represents the same gel after ethidium bromide staining of the RNA.



**Figure 3. Generation of Sensitive FISH Probes.** Multicolor chromosome PAINT analysis using *Label IT*® Biotin labeled human chromosome 7 (Streptavidin-Cy™ 3 conjugate detection) and *Label IT*® Fluorescein labeled human chromosome 6 on a Jurkat metaphase spread, with DAPI stained chromosomes in blue.



**Figure 4. Labelling Density can be Easily Controlled with the *Label IT*® Reagents.** Plasmid DNA was labeled with increasing ratios (w:w) of *Label IT*® CX-Rhodamine to DNA. The extent of labelling was estimated, and normalized to the amount of recovered DNA (# labels/100 base pairs), using two different criteria: fluorescence intensity of the attached rhodamine (excitation at 585 nm, emission at 610 nm), and visible absorbance at 585 nm. The significance of quenching, at the higher labelling ratios, becomes apparent in the fluorimetric estimations of labelling density.

Fluorophore	Excitation Wavelength (nm)	Emission Wavelength (nm)
Cy™3	550	570
Cy™5	649	670
CX-Rhodamine	576	597
TM-Rhodamine	546	576
Fluorescein	492	518

**Table 1. Excitation and Emission Wavelengths of Fluorescent *Label IT*® Reagents.**