Experiment with pre-optical cold splicing technology

Overview

We now report development of methodologies for studying the splicing of isolated single pre-mRNA molecules in real time. In this system, a fluorescently tagged pre-mRNA is tethered to a glass surface via its 3′-end. The exercise was conducted to gain hands-on experience with fiber optic preparation, splicing, and splice loss estimation. Fusion splicing is the most widely used method of splicing as it provides for the lowest loss and least reflectance, as well as providing the strongest and most reliable joint between two fibers. Colocalization single-molecule spectroscopy (CoSMoS) allows following spliceosome assembly in real time at single-molecule resolution in the full complexity. We demonstrate halving the record-low loss of interconnection between a nested antiresonant nodeless type hollow-core fiber (NANF) and standard single-mode fiber (SMF). 07 dB above the theoretically-expected minimum loss. We also optimized the. Availability of plastic optical fiber (POF) The plastic optical fiber used in some of these experiments is available for science distributors. It is a 1000micron (1mm) POF available from several suppliers.

Experiment with pre-optical cold splicing technology

The first part of this experiment shows a demonstration of fiber splicing. In order to understand the steps involved in making a fiber splice, you need to know more about the structure of the optical fiber cable ...

This is the first nonfluorescent method reported on single-molecule analysis of pre-mRNA alternative splicing in living cells, offering a new venue to facilitate our understanding of the dynamic ...

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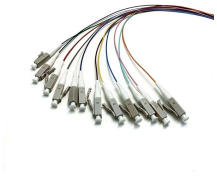
This series of fiber optics laboratory experiments was developed by Professor Elias Awad for the FOA under a NSF grant. It is intended to introduce students in technical high schools and colleges to the ...

Having been a postdoctoral researcher for geneticist James Watson and then a staff member at Cold Spring Harbor Laboratory (CSHL) prior to his appointment at MIT, Sharp was drawn ...

In our experiment, we splice the GRIN fiber to SMF-28, put it into a single-channel glass fiber array (FA) and polish it to the desired length, which depends on the required MFD.



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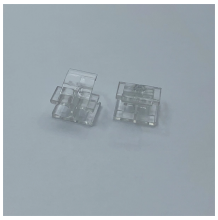
This repository documents an experiment on optical fiber fusion splicing using the Ericsson FSU-975 fusion splicer. The exercise was conducted to gain hands-on experience with fiber optic preparation, ...

This analysis allows quantitative assessment of nonspecific binding directly during the CoSMoS experiment and is typically highly preferable to separate control experiments.



Summary Removal of introns from pre-messenger RNAs (pre-mRNAs) via splicing provides a versatile means of genetic regulation that is often disrupted in human diseases. To ...

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