

Electronic Supplementary Information

A separate experiment was conducted in which a solution of sodium hydroxide and phenolphthalein solution were mixed using SF and TD chips under the same conditions. The mixing was monitored under a microscope. No indication from color development that the SF chip has higher mixing efficiency than TD. In fact, the results may indicate that the mixing efficiency of the TD chip is higher than that of the SF chip. No difference in the colour of the solution at the end of the channel was observed when compared with the solution colour after 6 flow split units at the beginning of the TD. On the other hand, the solution at the end of the SF chip was darker than that after 6 flow split units, indicating that the mixing was not complete after 6 mixing units. Therefore, the improvement in the CL signal intensity was due to the increase in the number of CL emitting species as a result of the higher detection area and chip volume.



Supplement 1: Left top and bottom: mixing in flow splitting unit numbers 6 and 32; a difference in colour can be observed. The colour of the solution in unit 6 is lighter than that in unit 32, indicating that the mixing was incomplete in unit 6. Right top and bottom: mixing in flow splitting unit numbers 6 and 26. Differences in colour can be observed. The colour of the solution in unit 6 is the same as that in unit 32, indicating that the mixing was complete in unit 6.