Supporting Information

Amplified piezoelectrically actuated on-chip flow switching for a rapid and stable microfluidic fluorescence activated cell sorter

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The top-front-left view of the customized fluidics interface is provided in Fig. S1(a), which is the same view as shown in Fig. 4(b). The bottom-real-right view of the same setup is given in Fig. S1(b), while a detailed expansion view is further given in Fig. S2. Sample tubes were connected to microchannels in the sorting chip through a tube holder, which is mounted on a position fixer. A customized sealing rubber is applied between the tube holder and microfluidic chip to prevent leakage of the sample. Spring bolts are used to attach the position fixer onto to the main plate to provide a certain pressure margin and protect microfluidic chips from high sealing pressure.

The distance between the inlets of the tube holder is designed as a fixed-pitch value. The position fixer is detachable and could be moved by a fixed pitch-distance along the length of the microfluidic chip. These designs enable the as-developed fluidics interface to be applicable to different microfluidic chips with multiple inlets or outlets and with different lengths.

A slot design is applied in the main plate to intake the microfluidic sorting chip. This allows the replacement of the chip between different experiments to be carried out through simple plug-in operations.

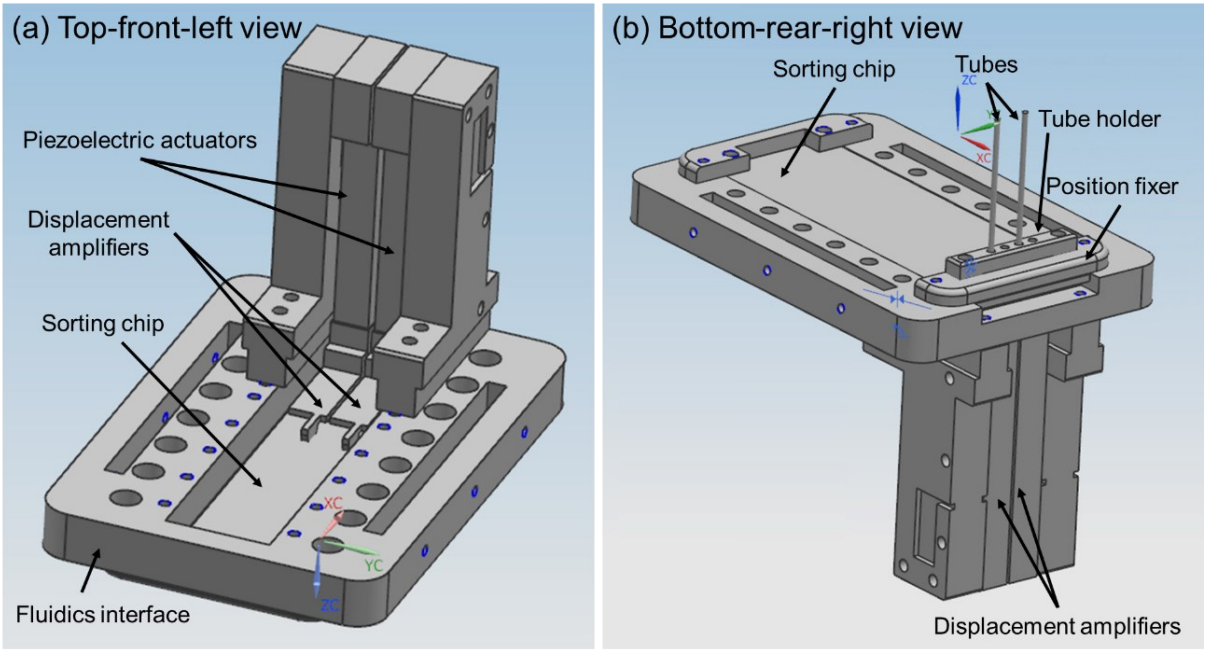

Fig S1. Different views of the customized fluidics interface: (a) top-front-left view and (b) bottom-rear-right view.

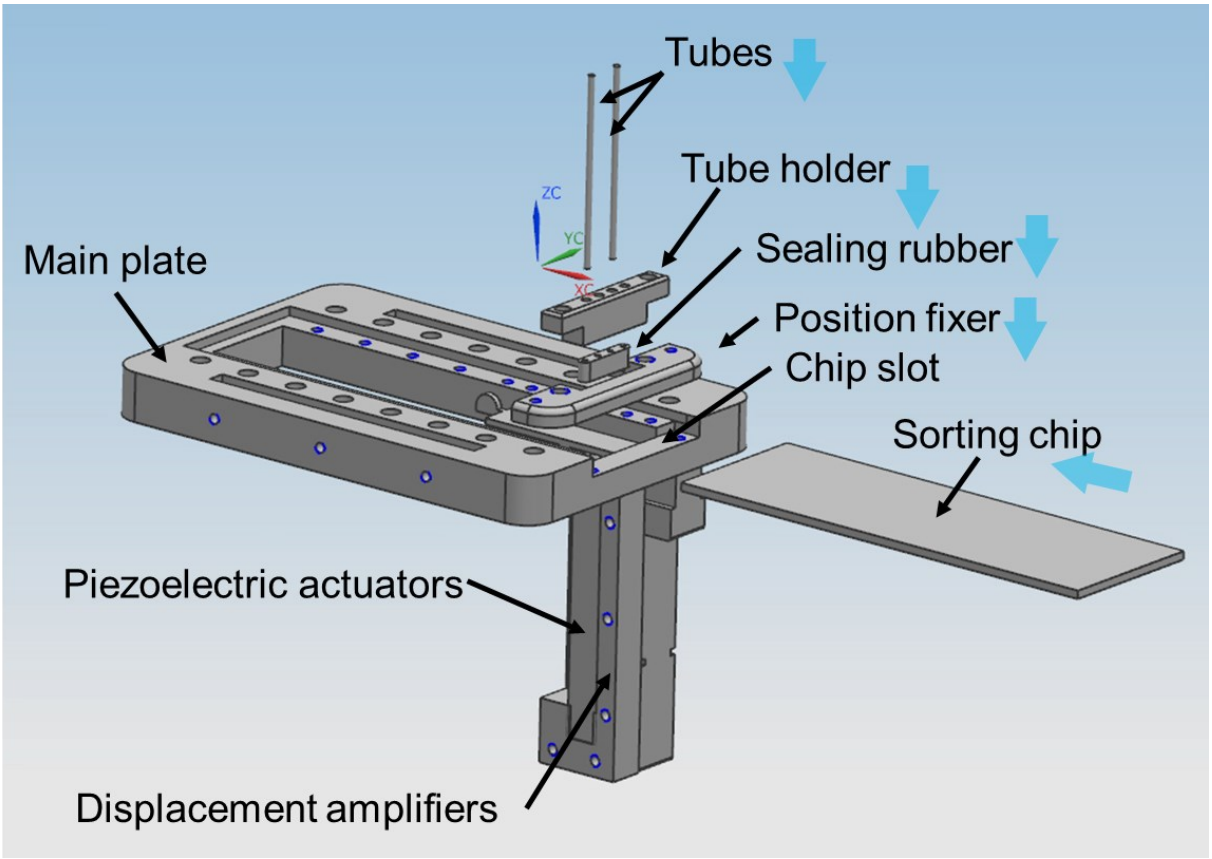

Fig S2. Expansion of the fluidics interface part for Fig. S1(b). The arrows represent the assembly directions of components.