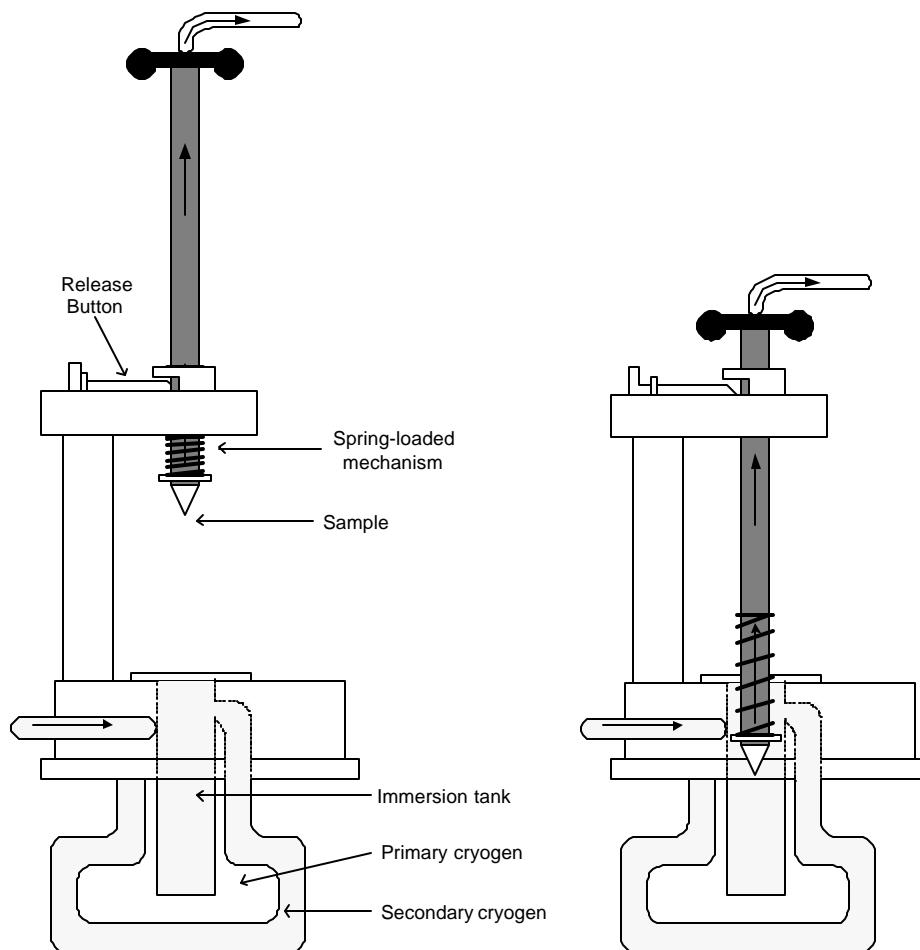


### *Immersion Device*

The device freezes samples by plunging them into a cryogen. Using suction, the sample is mounted on the point of the plunger (Figure 3). Which submerges the sample at a velocity around 3 m/s, via a spring-loaded mechanism. When the plunger is in the loaded position, the lower spring will exert a downward force, which along with gravity, will immerse the sample in the cryogen tank when a release button is pushed. It may be useful to make the plunging arm detachable so that loading the plunger will be easy. The primary cryogen encompasses a pipe that the secondary cryogen flows through, thus cooling and liquefying the secondary cryogen. When the sample is immersed in the secondary cryogen, the sample quickly freezes and the morphology is preserved.



**Figure 1: The Immersion Device in ready and activated position.**

The immersion device will effectively freeze small samples, such as the head of *Drosophila*. According to the literature, this method will be less effective in rapidly freezing an entire body sample of *Drosophila*.