

Tac Hunter

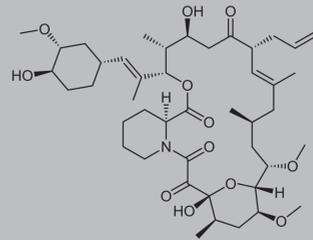
TAC Hunter B.V. is a research group focused on developing a forensic sampling product that bridges the gap between chemical detection and legally admissible evidence in the fight against illegal organ trafficking.

Organ Trade

Around 10% of organ transplants involve black-market organs. Illegal organ transplants often take place within or near legitimate hospitals. At present, it is very difficult to detect these hidden crimes. TAC Hunter addresses this problem by collecting evidence through the sewer system. Using an automated sensor, the system scans hospital wastewater for chemical traces of transplant patients and collects samples that can be used as evidence in court.

Tacrolimus

Tacrolimus is the medication given to transplant patients to prevent their immune system from rejecting the newly transplanted organ. Therefore the name Tac Hunters, hunting down the TACrolimus. Tac in the sewer? Every patient who receives a new organ takes this medicine, including recipients of illegal black-market organs. The drug is metabolized by the body and excreted through feces, after which it enters the hospital's wastewater system. By specifically monitoring suspicious concentrations of this.



Paddlefish

The American Paddlefish gave the researchers biomimetic inspiration. The TAC Hunter automated sampling agent utilizes a biomimetic core directly inspired by the natural hunting mechanisms of the American Paddlefish. We translate this knowledge into a framework to combat illegal organ transplants. The framework we used is the principle of Concentration & Gated Efficiency: using low-power chemical sensing to establish a target actuator, then triggering the high-energy mechanical sampling plunge.



Aquafin

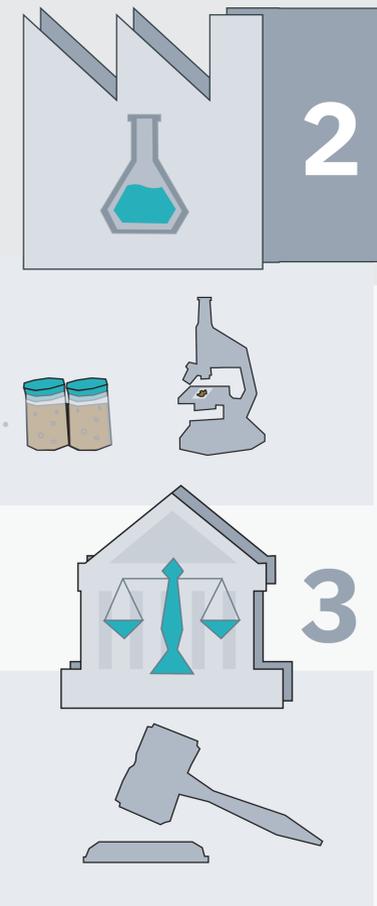
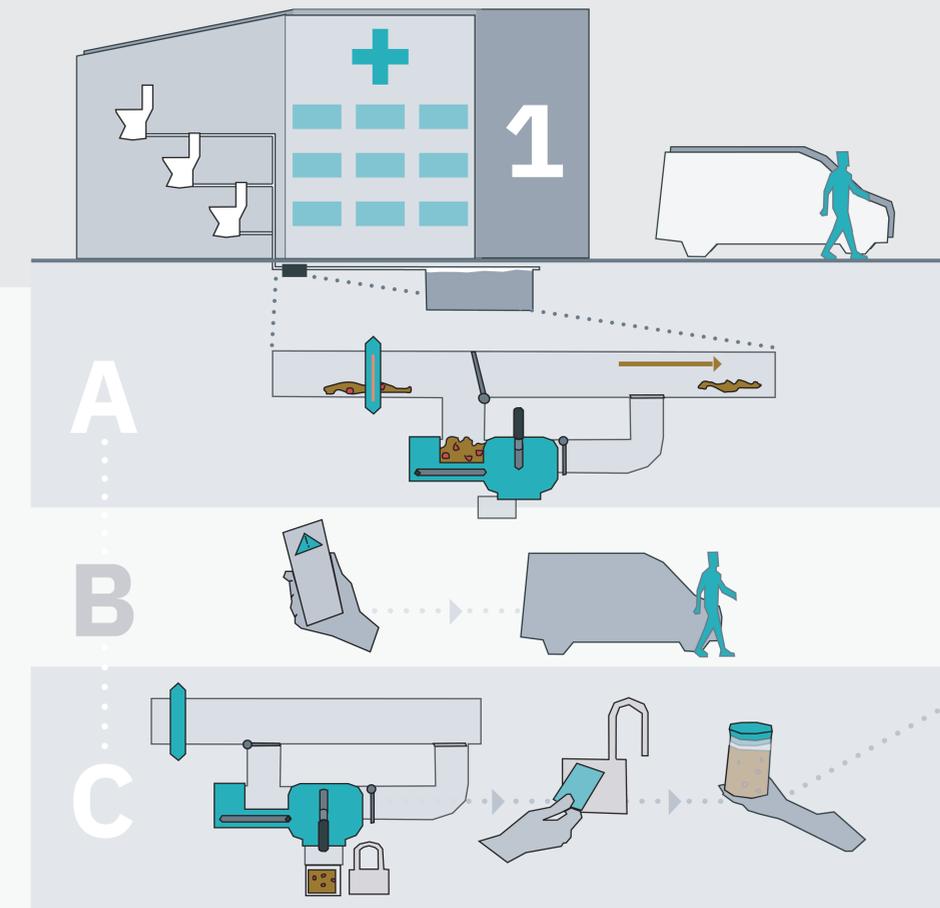
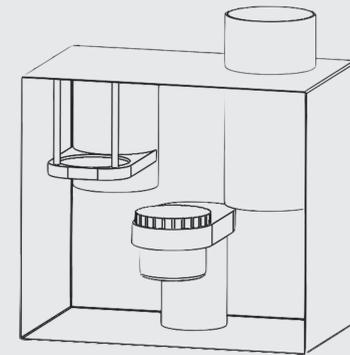
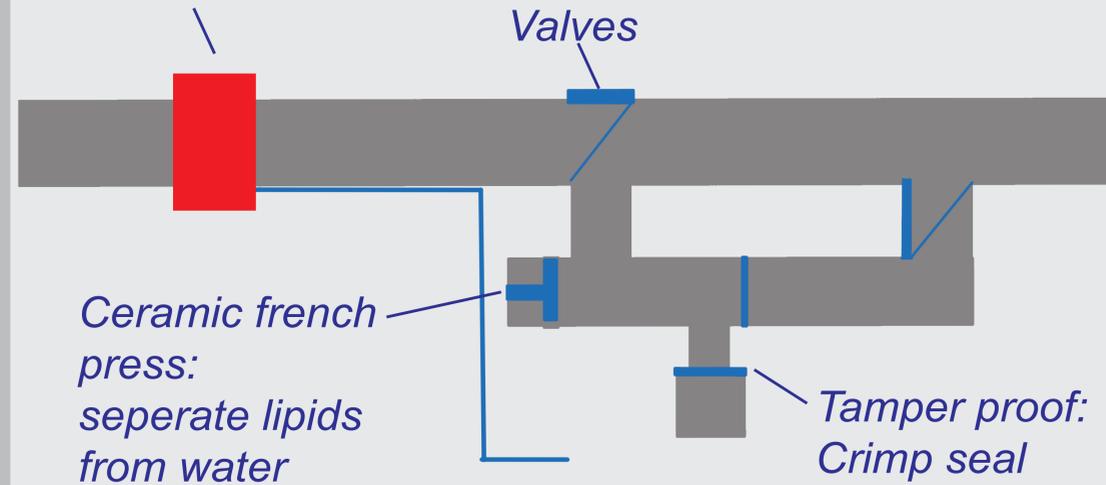
We've visited Aquafin on Thursday morning. They provide fenders of effluent water. Which means the water is treated so it no longer poses significant environmental impact. Aquafin has expertise in wastewater sewage systems and monitoring. Visiting Aquafin helps us understand how hospital wastewater flows through the sewer system and where realistic sampling points are located. Essential knowledge for developing a system that can detect traces of Tacrolimus in sewage. Through this expertise, we can evaluate the feasibility and design into a more reliable system.



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