CLAIMS

1. An apparatus (100) for near-real time detection of fluorescence of a sample, **characterised** by the sample comprising one or more fluorophores and representing a disease or condition, the sample being a part or piece removed from a human or animal by surgery during fluorescence guided surgery, the part or piece including tissue, tumors, diffuse cancer types, and intracellular and extracellular body fluids, , and the sample being transported away from the human or animal during fluorescence guided surgery in a transparent conduit (131) by a pressure less than the surrounding pressure, the apparatus comprising:

- a housing (101) being adapted to surround at least a part of the transparent conduit (131), the housing (101) comprising:
  - one or more light sources (110) operable to emit light towards the sample being transported in the transparent conduit (131), and
  - one or more light receivers (120) operable to detect fluorescence generated by one or more fluorophores comprised in the sample being transported in the transparent conduit (131),
  - the one or more light sources (110) and one or more light receivers (120) being arranged in horizontal, vertical, or angular position in said housing (101),
  - wherein the housing (101) comprises at least a first light source (110) and the one or more light receivers (120) comprise at least a first light receiver (120) and a second light receiver (120), wherein a distance between the at least a first light receiver (120) and a second light receiver (120) is selected from one or more distances based on a flu-

orescence induction speed, fluorescence decay, and fluorescence intensity, or a combination thereof, of the sample comprising one or more fluorophores,

- a computing device (180), the computing device (180) comprising computing means for:
  - receiving a first signal from at least one of the one or more light receivers (120), the first signal being proportional to the detected fluorescence by the at least one of the one or more light receivers (120);
  - comparing the first signal to a predefined threshold for the first signal; and
  - outputting a first information indicating comparison result, the apparatus providing near-real time detection of fluorescence of the sample during fluorescence guided surgery.

2. The apparatus (100) according to claim 1, wherein the housing (101) is adapted to enclose the whole perimeter of the transparent conduit (131).

3. The apparatus (100) according to claim 1 or 2, wherein the housing (101) is formed of two parts being attached to each other with attaching means.

4. The apparatus (100) according to any one of the preceding claims, wherein the housing (101) comprises seals at opposite longitudinal ends of the housing (101) for sealing the housing against the transparent conduit (131).

5. The apparatus (100) according to any one of the preceding claims, wherein the one or more light sources (110) are operable to emit, independently from each other, light of one or more fluorescence excitation curve wavelengths of the one or more fluorophores comprised in the sample.

6. The apparatus (100) according to any one of the preceding claims, wherein the one or more light receivers (120) are operable to detect, independently from each other, fluorescence at one or more wavelengths of one or more fluorescence emission curves of the one or more fluorophores comprised in the sample.

7. The apparatus (100) according to any one of the preceding claims, wherein each of the one or more light sources (110) further comprise one or more emission light filters (115) and/or each of the light receivers (120) comprise one or more incoming light filters (125).

8. The apparatus (100) according to any one of the preceding claims, wherein the one or more fluorophores comprised in the sample are each independently selected from the group consisting of PpIX, indocyanine green, methylene blue, fluorescein, and salts thereof; cyanines, T700, T800, BLZ-100, GB119, IRDye800CW conjugate, IRDye700DX conjugate, EC17, LUM015, AVB-620, folate-fluorescein isothiocyanate (FITC), OTL38, gGlu-HMRG, green fluorophore conjugates, fluorescently labelled peptides, fluorophore conjugated antibodies, fluorescent nanoparticles, activatable fluorescent probe, endogenous fluorophore, or combinations thereof.

9. The apparatus (100) according to any one of the preceding claims, wherein at least one of the one or more light sources is located before the one or more light receivers in respect of the transport direction of the sample being transported in the transparent conduit.

10. The apparatus according to any one of the preceding claims, wherein the housing (101) comprises at least a first light source (110) and the one or more light receivers (120) comprise at least a first light receiver (120) and a second light receiver (120), positioned so that a distance from the first light receiver (120) to the first light source (110) is less than the distance from the second light receiver to said first light source (110), and wherein the computing means is further configured to

verify a fluorescence detection of the first light receiver (120) from two or more light receivers (120) by:

- receiving the first signal from the first light receiver (120), the first signal being proportional to the detected fluorescence by the first light receiver (120);
- determining, in response to the receiving the first signal, a verifying value for the second signal;
- receiving a second signal from the second light receiver (120), the second signal being proportional to the detected fluorescence by the second light receiver (120);
- comparing the second signal to the verifying value;
- outputting, in response to the second signal exceeding or being equal to the verifying value, a first information on the second signal; and
- outputting, in response to the second signal failing to exceed or be equal to the verifying value, a second information on the second signal.

11. The apparatus (100) according to any one of the preceding claims, wherein the computing device (180) is provided in the housing (101).

12. A method for detecting fluorescence of a sample obtained from a human or animal by surgery during fluorescence guided surgery, the sample comprising one or more fluorophores and representing a disease or health condition, and the sample being transported away from the human or animal in a transparent conduit, the method comprising:

i) transporting a sample, comprising one or more fluorophores and representing a disease or condition, in a transparent conduit (131) away from the human or animal;

ii) emitting light towards the sample being transported in the conduit (131);

iii) detecting fluorescence generated by one or more fluorophores comprised in the sample being transported in the conduit (131).

13. The method according to claim 12, wherein the method further comprises the steps of:

iv) generating a first signal being proportional to the detected fluorescence;

v) comparing the first signal to a predefined threshold for the first signal; and

vi) outputting a first information indicating comparison result.

14. Use of an apparatus (100) for detecting fluorescence of a sample obtained from a human or animal by surgery during fluorescence guided surgery, the sample comprising one or more fluorophores and representing a disease or health condition, and the sample being transported away from the human or animal in a transparent conduit (131) according to any of claims 1 to 11 in a method selected from the group consisting of an invasive medical treatment method, a detection method of a diseased tissue or a diseased body fluid comprising one or more fluorophores and representing a disease or health condition, a detection method of a tumor and in the diagnosis of cancer.

15. A kit-of-parts of an apparatus for detecting fluorescence of a sample obtained from a human or animal by surgery during fluorescence guided surgery and comprising one or more fluorophores and representing a disease or health condition according to any of claims 1 to 10 combined with a transparent conduit (131) of an ultrasonic aspirator or a surgical suction device.