## CLAIMS

1. A system for extraction of cells from a sample of tissue, comprising a main device (1) and a disposable kit (4) for use with said main device,

**characterized in that**:

said main device (1) is configured to host at least one disposable kit and is configured to execute at least one preset program when loaded with at least one disposable kit;

said disposable kit (4) comprises a work chamber (11) for receiving a sample of tissue to be processed, and at least one further receptacle (12, 13),

said disposable kit comprises at least a pumping system and a valve system (14, 19) which are operable for selective introduction of a predetermined amount of fluid from said receptacle (12) into the work chamber (11), or selective discharge of a predetermined amount of fluid from the work chamber (11) to the receptacle or to one of the receptacles included in the disposable kit (12, 13),

said main device comprises first interface means and said disposable kit comprises second interface means adapted to match with the first interface means of the main device,

said pumping system and valve system (14, 19) of the disposable kit (4) being controllable by the main device (1) during the execution of a preset program, via said interface means between the main device and the disposable kit.

2. A system according to claim 1 ~~or 2~~, said interface means between the main device and a disposable kit (4) including one or more of the

a work chamber (11) for receiving a sample of tissue to be processed, and at least one receptacle,

at least a pumping system and a valve system (14, 19) which are operable for charging an amount of fluid from said at least one receptacle into the work chamber, or discharging an amount of fluid from the work chamber to said at least one receptacle;

said disposable kit also comprising interface means which includes control means for actuation of said pumping system and valve system, when the disposable kit is used in said device (1).

21. A disposable kit according to claim 20~~18~~, said control means including at least a rotary joint.

22. A disposable kit according to claim ~~18~~ 20 or ~~19~~21, comprising a plurality of said receptacles (12, 13), and comprising a valve member for selective connection between the work chamber and any of the receptacles (12, 13) of the disposable kit (4).

23. A disposable kit according to claim 2~~2~~3, ~~said~~ comprising a sliding piston inside said work~~ing~~ chamber.

24. A disposable kit according to claim~~s 21 and~~ ~~22~~23, characterized in that said valve member is a rotary member, and the disposable kit (4) comprises a screw system for operation of said sliding piston, and said control means comprises at least a first rotary joint for controlling said valve member, and a second rotary joint for controlling said screw system.

25. A disposable kit according to claim ~~25~~24, said screw system comprising an axially stationary member and a travelling member, the travelling member being integral with the piston, and the stationary member having

a termination outside the work chamber which form said second rotary joint.

26. A disposable kit according to any of the previous claims, the work chamber having an upper conical region and the sliding piston having a conical head.

27. A disposable kit according to any of the previous claims, said valve member having a chamber (38) for collection of the stem-cells containing pellet.

28. A disposable kit according to claim 27, said valve member having an axial passage (35) and a tangential passage (36), said pellet collection chamber (38) being a tapered chamber coaxially aligned to said axial passage, and said tangential passage (36) being open in a lateral surface (38A) of said chamber.

29. A disposable kit according to claim 28, said lateral surface (38A) being conical, preferably having a cone angle between 10° and 30° and more preferably around 20°.

30. A disposable kit according to any of ~~the previous~~ claims 20 to 29, comprising a substantially cylindrical body which contains the work chamber, and a plurality of receptacles which are radially arranged around said cylindrical body.

31. A disposable kit according to any of ~~the previous~~ claims 20 to 30, said receptacles of the disposable kit including a bag (13) for receiving the cells extracted from the sample of tissue.

32. A disposable kit according to any of ~~the previous~~ claims 20 to 31, said disposable kit being made of a thermoplastic biocompatible material.

33. A disposable kit according to any of ~~the previous~~ claims 20 to 32, the kit being shipped empty and preferably under vacuum.

34. A disposable kit according to any of ~~the previous~~ claims 20 to 33, for use in a process of extraction of stem cells from adipose tissue.

35. A process of extraction of cells form a sample of tissue, particularly for the extraction of stem cells form adipose tissue, characterized by the use of a system or use of a disposable kit according to any of the previous claims.