Claims

1. Apparatus for collecting a saliva sample, the apparatus comprising:
a filter; and
a pressure generator operable to generate pressure to cause the saliva sample to be transferred through the filter,
the filter being configured to reduce a viscosity of the saliva sample as the saliva sample is transferred through the filter.

~~2. Apparatus for collecting a saliva sample according to claim 1, the pressure generator further comprising a receptacle, the receptacle being arranged to receive the saliva sample and being compressible to generate pressure to cause the saliva sample to be transferred out of the receptacle and through the filter.~~

~~3~~2. Apparatus for collecting a saliva sample according to claim ~~2~~1, wherein the pressure generator further comprises a receptacle being arranged to receive the saliva sample and being compressible to generate pressure to cause the saliva sample to be transferred out of the receptacle through the filter, the receptacle ~~comprising~~ comprises a seal operable to seal an upper, shielding portion of the receptacle from a lower portion of the receptacle, the lower portion of the receptacle being operable to undergo manual compression or the receptacle comprises a hydrophobic inner surface.

~~4. Apparatus for collecting a saliva sample according to claim 2 or 3, the receptacle comprising a hydrophobic inner surface.~~

~~5~~3. Apparatus for collecting a saliva sample according to ~~any one of~~ claim~~s~~ 2 ~~to 4~~, the receptacle being in the form of a funnel.

~~6~~4. Apparatus for collecting a saliva sample according to claim ~~5~~3, ~~the~~a width of the funnel opening being in ~~the~~a range of 8 cm to 20 cm, or the funnel comprises a plurality of handles.

~~7. Apparatus for collecting a saliva sample according to claim 5 or 6, the funnel comprising a plurality of handles.~~

~~8~~5. Apparatus for collecting a saliva sample according to claim 1, the pressure generator further comprising a plunger operable to generate a positive pressure ~~to cause~~on the saliva sample ~~to be transferred~~to drive the saliva sample through the filter or to generate a negative pressure on the saliva sample to draw the saliva sample through the filter.

~~9. Apparatus for collecting a saliva sample according to claim 8, the plunger being further operable to generate a positive pressure on the saliva sample to drive the saliva sample though the filter.~~

~~10. Apparatus for collecting a saliva sample according to claim 9, the apparatus further comprising a rigid receptacle for receiving a saliva sample from a user, the plunger being operable to be inserted into the receptacle and further to generate a positive pressure on the saliva sample to drive the saliva sample out of the receptacle though the filter.~~

~~11. Apparatus for collecting a saliva sample according to claim 8 or 9, the plunger being further operable to generate a negative pressure on the saliva sample to draw the saliva sample through the filter.~~

~~12. Apparatus for collecting a saliva sample according to claim 11, the apparatus further comprising a collection vessel, the plunger being arranged within the collection vessel and operable to generate a negative~~

~~pressure on the saliva sample to draw the saliva sample through the filter and into the collection vessel.~~

~~13. Apparatus for collecting a saliva sample according to claim 8 or 9, wherein the filter is incorporated into the plunger.~~

~~14. Apparatus for collecting a saliva sample according to claim 1, the apparatus further comprising a collection vessel, the pressure generator comprising a suction device operable to draw air out of the collection vessel.~~

~~15. Apparatus for collecting a saliva sample according to any one of the preceding claims, wherein the filter is configured to reduce the viscosity at a shear rate of $50s^{-1}$ of raw saliva by at least 20%.~~

~~16. Apparatus for collecting a saliva sample according to claim 15, wherein the filter is configured to reduce the viscosity at a shear rate of $50s^{-1}$ of raw saliva by at least 50%.~~

~~17. Apparatus for collecting a saliva sample according to any one of the preceding claims, wherein the filter is further configured to reduce a coefficient of variation of the saliva sample.~~

~~18. Apparatus for collecting a saliva sample according to claim 17, wherein the filter is configured to reduce an average coefficient of variation of raw saliva across shear rates by at least 80%.~~

~~19. Apparatus for collecting a saliva sample according to any one of the preceding claims, wherein the filter comprises one or more of a plurality of channels, a multi-layer metal mesh and a porous substrate.~~

~~20~~6. Apparatus for collecting a saliva sample according to ~~claim 19~~any one of claims 1 to 5, wherein the filter comprises a plurality of channels, a multi-layer metal mesh and a porous substrate, and wherein one or more of the plurality of channels has a cross sectional width in the range 0.03 to 3 mm, or wherein one or more of the plurality of channels has a narrowing cross-section in the direction of a fluidic path through the filter, or wherein the plurality of channels comprises at least two channels having cross sections of different widths.

~~21. Apparatus for collecting a saliva sample according to claim 19, wherein the filter comprises a plurality of channels and wherein one or more of the plurality of channels has a narrowing cross-section in the direction of a fluidic path through the filter.~~

~~22~~7. Apparatus for collecting a saliva sample according to ~~claim 21~~any one of claims 1 to 5, wherein the filter comprises a plurality of channels, a multi-layer metal mesh and a porous substrate, and wherein one or more of the plurality of channels has a narrowing cross-section in the direction of a fluidic path through the filter, the filter further comprises a surface arranged to receive saliva output from the one or more of the plurality of channels having the~~a~~ narrowing cross-section.

~~23~~8. Apparatus for collecting a saliva sample according to claim ~~22~~7, wherein the surface is a hanging surface.

~~24. Apparatus for collecting a saliva sample according to claim 19, wherein the filter comprises a plurality of channels and the plurality of channels comprises at least two channels having cross sections of different widths.~~

~~25~~9. Apparatus for collecting a saliva sample according to any one of claims ~~19 to 24~~1 to 5, wherein the filter comprises one or more of a plurality of

channels, a multi-layer metal mesh, and a porous substrate, the filter comprises a plurality of first channels for receiving the saliva sample, a second channel and a third channel in fluidic connection with the plurality of first channels, the plurality of first channels being fluidically connected to the third channel by the second channel.

~~26~~10. Apparatus for collecting a saliva sample according to claim ~~25~~9, wherein the second channel has a narrower cross-sectional width than the first and third channels or wherein the second channel forms a non-zero angle with the first and third channels or wherein the second channel forms a non-zero angle with the first and third channels, the second channel is substantially perpendicular to the first and third channels.

~~27. Apparatus for collecting a saliva sample according to claim 25 or 26, wherein the second channel forms a non-zero angle with the first and third channels.~~

~~28. Apparatus for collecting a saliva sample according to claim 27, wherein the second channel is substantially perpendicular to the first and third channels.~~

~~29~~11. Apparatus for collecting a saliva sample according to ~~any one of~~ claim~~s 25 to 28~~9 or claim 10, wherein the plurality of first channels is arranged in a substantially circular configuration or wherein the plurality of first channels is arranged in a plurality of substantially circular concentric configurations.

~~30. Apparatus for collecting a saliva sample according to any one of claims 25 to 28, wherein the plurality of first channels is arranged in a plurality of substantially circular concentric configurations.~~

~~31~~12. Apparatus for collecting a saliva sample according to any one of claims ~~25~~ 9 to ~~30~~11, wherein the third channel is arranged substantially centrally in a lower surface of the filter, or wherein the filter comprises two third channels, or wherein one or more walls of the second channel has a textured surface.

~~32. Apparatus for collecting a saliva sample according to any one of claims 25 to 30, wherein the filter comprises two third channels.~~

~~33. Apparatus for collecting a saliva sample according to any one of claims 25 to 32, wherein one or more walls of the second channel has a textured surface.~~

~~34~~13. Apparatus for collecting a saliva sample according to any one of claims ~~25~~ 9 to ~~33~~12, wherein the filter comprises stacked first and second modules, the plurality of first channels being comprised within the first module, the third channel being comprised within the second module and the second channel being formed at an interface between the first and second modules.

~~35~~14. Apparatus for collecting a saliva sample according to claim ~~34~~13, wherein the first and second modules are connected via a first snap fitting.

~~36~~15. Apparatus for collecting a saliva sample according to claim ~~34~~ 13 or ~~35~~14, wherein the filter further comprises, in the second channel, one or more of a further filter and a bioactive substance.

~~37~~16. Apparatus for collecting a saliva sample according to any one of claims ~~34~~ 13 to ~~36~~15, the filter comprising a plurality of alternately stacked first and second modules.

~~38. Apparatus for collecting a saliva sample according to any one of the preceding claims, the filter comprising a shielding portion configured to restrict a direction of flow of saliva output from the filter.~~

~~39~~17. Apparatus for collecting a saliva sample according to claim 1, the apparatus further comprising a cap operable to close a collection vessel, the filter being comprised within the cap, or the apparatus further comprising a luer adaptor for connecting the filter to a collection vessel.

~~40~~18. Apparatus for collecting a saliva sample according to claim ~~39~~17, wherein the apparatus further comprises the cap operable to close the collection vessel and the filter is being comprised within the cap, the filter ~~being~~ is connected to the cap via a snap fitting.

~~41. Apparatus for collecting a saliva sample according to claim 1, further comprising a luer adaptor for connecting the filter to a collection vessel.~~

~~42. Apparatus for collecting a saliva sample according to any one of claims 39 to 41, the apparatus further comprising the collection vessel.~~

~~43~~19. Apparatus for collecting a saliva sample, according to claim ~~42~~17, wherein the apparatus further comprises the collection vessel, the collection vessel further ~~comprising~~ comprises saliva detection and/or deactivation media, the filter being configured to prevent backflow out of the collection vessel.

~~44. A filter for filtering saliva for use with an apparatus for collecting a saliva sample according to claim 1, the filter being configured to reduce the viscosity of the saliva sample transferred through the filter.~~

~~45. A filter for filtering saliva according to claim 44, the filter further being configured to reduce a coefficient of variation of the saliva sample.~~

~~46. Pressure generator for use with an apparatus for collecting a saliva sample according to claim 2, the pressure generator comprising a receptacle for receiving a saliva sample from a user, the receptacle being manually compressible to generate pressure to cause the saliva sample to be transferred out of the receptacle.~~

~~47~~20. A method of reducing the viscosity of a saliva sample, the method comprising:

applying pressure to the saliva sample to cause the saliva sample to be transferred through a filter, the filter being configured to reduce the viscosity of the saliva sample as the saliva sample is transferred through the filter,

wherein applying pressure to the saliva sample to cause the saliva sample to be transferred though the filter further comprises alternately applying positive and negative pressure to the saliva to cause the saliva sample to be transferred back and forth through the filter.

~~48. A method of reducing the viscosity of a saliva sample according to claim 47, the filter being further configured to reduce a coefficient of variation of the saliva sample.~~

~~49. A method of reducing the viscosity of a saliva sample according to claim 47 or 48, wherein applying pressure to the saliva sample to cause the saliva sample to be transferred through the filter further comprises applying positive pressure to the saliva sample to drive it through the filter.~~

50. A method of reducing the viscosity of a saliva sample according to any one of claims 47 to 49, wherein applying pressure to the saliva sample to cause the saliva sample to be transferred through the filter further comprises applying negative pressure to draw the saliva sample through the filter.

51. A method of reducing the viscosity of a saliva sample according to claim 47 or 48, wherein applying pressure to the saliva sample to cause the saliva sample to be transferred though the filter further comprises alternately applying positive and negative pressure to the saliva to cause the saliva sample to be transferred back and forth through the filter.

52. A method of collecting a saliva sample from a user, the method comprising:

receiving, into a compressible receptacle, a saliva sample from the user;

manually compressing the compressible receptacle to drive the saliva sample from the compressible receptacle into a collection vessel; and

receiving the saliva sample in the collection vessel.

53. A method of collecting a saliva sample from a user according to claim 52, further comprising manually compressing the receptacle to drive the saliva sample through a filter from the receptacle into the collection vessel.

54. A method of collecting saliva sample from a user according to claim 52 or 53, wherein manually compressing the receptacle comprises one or more of squeezing, rolling and twisting the receptacle.