What is claimed is:

1. A stabilization buffer comprising:

(a) guanidine hydrochloride at a concentration of about 4.05 M to about 4.95 M;

(b) Triton X-100 at a concentration of about 0.09% to about 0.11% (v/v); and

(c) EDTA at a concentration of about 18 mM to about 22 mM,

wherein the pH of the stabilization buffer is less than about 4.5.

2. The stabilization buffer of claim 1, wherein the stabilization buffer comprises:

(a) guanidine hydrochloride at a concentration of about 4.275 M to about 4.725 M;

(b) Triton X-100 at a concentration of about 0.095% to about 0.105% (v/v); and

(c) EDTA at a concentration of about 19 mM to about 21 mM.

3. The stabilization buffer of any of the preceding claims, wherein the stabilization buffer comprises:

(a) guanidine hydrochloride at a concentration of about 4.5 M;

(b) Triton X-100 at a concentration of about 0.1% (volume/volume); and

(c) EDTA at a concentration of about 20 mM.

4. The stabilization buffer of any of the preceding claims, wherein the pH of the stabilization buffer is between about 4.05 and about 4.11.

5. The stabilization buffer of any of the preceding claims, further comprising:

(d) citric acid at a concentration of about 72 mM to about 88 mM; and

(e) sodium citrate at a concentration of about 108 mM to about 132 mM.

6. The stabilization buffer of claim 5, wherein the stabilization buffer comprises:

(d) citric acid at a concentration of about 76 mM to about 84 mM; and

(e) sodium citrate at a concentration of about 114 mM to about 126 mM.

7. The stabilization buffer of claim 6, wherein the stabilization buffer comprises:

(d) citric acid at a concentration of 80 mM; and

(e) sodium citrate at a concentration of 120 mM.

8. The stabilization buffer of any of the preceding claims, wherein the stabilization buffer comprises:

(a) guanidine hydrochloride at a concentration of about 4.5 M;

(b) Triton X-100 at a concentration of about 0.1% (volume/volume);

(c) EDTA at a concentration of about 20 mM;

(d) citric acid at a concentration of 80 mM; and

(e) sodium citrate at a concentration of 120 mM,

wherein the pH of the stabilization buffer is between about 4.05 and about 4.11.

9. A composition comprising a mixture of:

(a) the stabilization buffer of any of the preceding claims; and

(b) a biological sample isolated from a subject.

10. The composition of claim 9, wherein the biological sample comprises blood, plasma, serum, urine, breast milk, cerebrospinal fluid, mucus, gastric juice, peritoneal fluid, pleural fluid, saliva, sebum, semen, sweat, tears, vaginal secretion, vomit, endolymph, perilymph or any combination thereof.

11. The composition of claim 9, wherein the biological sample is a blood sample, preferably wherein the blood sample is:

a) a whole blood sample obtained by venipuncture; or

b) a blood sample obtained by finger prick.

12. The composition of claim 10, wherein the biological sample is a saliva sample.

13. The composition of any one of claims 9-12, wherein the biological sample comprises at least one RNA transcript, wherein the amount of the at least one RNA transcript decreases by no more than about 5% after the composition is incubated for at least one day at room temperature, preferably wherein the amount of the at least one RNA transcript decreases by no more than about 1%, preferably wherein the amount of the at least one RNA transcript decreases by no more than about 0.5%.

14. A kit comprising the stabilization buffer of any one of claims 1-8.

15. The kit of claim 13, comprising the stabilization buffer in at least one sample collection tube, preferably wherein the at last one sample collection tube is pre-coated with K2-EDTA,

16. The kit of claim 14, wherein the at least one sample collection tube is a 6ml, 16x100 mm sample collection tube, preferably wherein the at least one sample tube is pre-coated with at least about 10.8 mg of K2-EDTA.

17. A method of stabilizing a biological sample from a subject, the method comprising contacting the biological sample and the stabilization buffer of any one of claims 1-8, thereby producing a stabilized biological sample.

18. The composition of claim 9, wherein the biological sample comprises blood, plasma, serum, urine, breast milk, cerebrospinal fluid, mucus, gastric juice, peritoneal fluid, pleural fluid, saliva, sebum, semen, sweat, tears, vaginal secretion, vomit, endolymph, perilymph or any combination thereof.

19. The composition of claim 9, wherein the biological sample is a blood sample, preferably wherein the blood sample is:

a) a whole blood sample obtained by venipuncture; or

b) a blood sample obtained by finger prick.

20. The composition of claim 10, wherein the biological sample is a saliva sample.

21. The method of any one of claims 17-20, wherein the biological sample comprises at least one RNA transcript, wherein the expression level of the at least one RNA transcript in the stabilized biological sample measured after incubating the stabilized biological sample for at least 24 hours at about room temperature is within about 5% (±5%), preferably within about 1% (±1%), preferably within about 0.5% (±0.5%) of the expression level of the at least one RNA transcript as measured no more than 1 hour after the sample was collected.

22. The method of claim 21, wherein the expression level of the at least one RNA transcript is measured using quantitative PCR.

23. The method of anyone of claims 17-22, the method further comprising:

i) extracting RNA from the stabilized biological sample;

ii) determining the expression level of at least one RNA transcript in the extracted RNA; and

iii) diagnosing the subject with a disease and/or disorder, providing a treatment recommendation to the subject, monitoring the progression of a disease and/or disorder in the subject, or administering at least one therapeutic to the subject based on the expression level of the at least one RNA transcript.

24. The method of claim 23, wherein determining the expression level of the at least one RNA transcript in the extracted RNA comprises the use of quantitative PCR.

25. The method of claim 24, further comprising, prior to the use of quantitative PCR, reverse-transcribing the at least one RNA transcript to produce cDNA.

26. The method of any one of claims 23-25, wherein the disease or disorder is cancer, gastroenteropancreatic (GEP) neuroendocrine neoplasm (GEP-NEN), melanoma, multiple myeloma, a plasma cell dyscrasia, monoclonal gammopathy of undetermined significance (MGUS), colon cancer, prostate cancer or SARS-CoV-2 infection.

27. The method of claim 26, wherein the cancer is a carcinoma, a lymphoma, a blastoma, a sarcoma, a leukemia, a brain cancer, a breast cancer, a blood cancer, a bone cancer, a lung cancer, a skin cancer, a liver cancer, an ovarian cancer, a bladder cancer, a renal cancer, a gastric cancer, a thyroid cancer, a pancreatic cancer, an esophageal cancer, a prostate cancer, a cervical cancer or a colorectal cancer.

What is claimed is:

1. A stabilization buffer comprising:

(a) guanidine hydrochloride at a concentration of about 4.05 M to about 4.95 M;

(b) Triton X-100 at a concentration of about 0.09% to about 0.11% (v/v); and

(c) EDTA at a concentration of about 18 mM to about 22 mM,

wherein the pH of the stabilization buffer is less than about 4.5.

2. The stabilization buffer of claim 1, wherein the stabilization buffer comprises:

(a) guanidine hydrochloride at a concentration of about 4.275 M to about 4.725 M;

(b) Triton X-100 at a concentration of about 0.095% to about 0.105% (v/v); and

(c) EDTA at a concentration of about 19 mM to about 21 mM.

3. The stabilization buffer of any of the preceding claims, wherein the stabilization buffer comprises:

(a) guanidine hydrochloride at a concentration of about 4.5 M;

(b) Triton X-100 at a concentration of about 0.1% (volume/volume); and

(c) EDTA at a concentration of about 20 mM.

4. The stabilization buffer of any of the preceding claims, wherein the pH of the stabilization buffer is between about 4.05 and about 4.11.

5. The stabilization buffer of any of the preceding claims, further comprising:

(d) citric acid at a concentration of about 72 mM to about 88 mM; and

(e) sodium citrate at a concentration of about 108 mM to about 132 mM.

6. The stabilization buffer of claim 5, wherein the stabilization buffer comprises:

(d) citric acid at a concentration of about 76 mM to about 84 mM; and

(e) sodium citrate at a concentration of about 114 mM to about 126 mM.

7. The stabilization buffer of claim 6, wherein the stabilization buffer comprises:

(d) citric acid at a concentration of 80 mM; and

(e) sodium citrate at a concentration of 120 mM.

8. The stabilization buffer of any of the preceding claims, wherein the stabilization buffer comprises:

(a) guanidine hydrochloride at a concentration of about 4.5 M;

(b) Triton X-100 at a concentration of about 0.1% (volume/volume);

(c) EDTA at a concentration of about 20 mM;

(d) citric acid at a concentration of 80 mM; and

(e) sodium citrate at a concentration of 120 mM,

wherein the pH of the stabilization buffer is between about 4.05 and about 4.11.

9. A composition comprising a mixture of:

(a) the stabilization buffer of any of the preceding claims; and

(b) a biological sample isolated from a subject.

10. The composition of claim 9, wherein the biological sample comprises blood, plasma, serum, urine, breast milk, cerebrospinal fluid, mucus, gastric juice, peritoneal fluid, pleural fluid, saliva, sebum, semen, sweat, tears, vaginal secretion, vomit, endolymph, perilymph or any combination thereof.

11. The composition of claim 9, wherein the biological sample is a blood sample, preferably wherein the blood sample is:

a) a whole blood sample obtained by venipuncture; or

b) a blood sample obtained by finger prick.

12. The composition of claim 9, wherein the biological sample is a saliva sample.

13. The composition of any one of claims 9-12, wherein the biological sample comprises at least one RNA transcript, wherein the amount of the at least one RNA transcript decreases by no more than about 5% after the composition is incubated for at least one day at room temperature, preferably wherein the amount of the at least one RNA transcript decreases by no more than about 1%, preferably wherein the amount of the at least one RNA transcript decreases by no more than about 0.5%.

14. A kit comprising the stabilization buffer of any one of claims 1-8.

15. The kit of claim 13, comprising the stabilization buffer in at least one sample collection tube, preferably wherein the at last one sample collection tube is pre-coated with K2-EDTA,

16. The kit of claim 14, wherein the at least one sample collection tube is a 6ml, 16x100 mm sample collection tube, preferably wherein the at least one sample tube is pre-coated with at least about 10.8 mg of K2-EDTA.

17. A method of stabilizing a biological sample from a subject, the method comprising contacting the biological sample and the stabilization buffer of any one of claims 1-8, thereby producing a stabilized biological sample.

18. The method of claim 17, wherein the biological sample comprises blood, plasma, serum, urine, breast milk, cerebrospinal fluid, mucus, gastric juice, peritoneal fluid, pleural fluid, saliva, sebum, semen, sweat, tears, vaginal secretion, vomit, endolymph, perilymph or any combination thereof.

19. The method of claim 17, wherein the biological sample is a blood sample, preferably wherein the blood sample is:

a) a whole blood sample obtained by venipuncture; or

b) a blood sample obtained by finger prick.

20. The method of claim 17, wherein the biological sample is a saliva sample.

21. The method of any one of claims 17-20, wherein the biological sample comprises at least one RNA transcript, wherein the expression level of the at least one RNA transcript in the stabilized biological sample measured after incubating the stabilized biological sample for at least 24 hours at about room temperature is within about 5% (±5%), preferably within about 1% (±1%), preferably within about 0.5% (±0.5%) of the expression level of the at least one RNA transcript as measured no more than 1 hour after the sample was collected.

22. The method of claim 21, wherein the expression level of the at least one RNA transcript is measured using quantitative PCR.

23. The method of anyone of claims 17-22, the method further comprising:

i) extracting RNA from the stabilized biological sample;

ii) determining the expression level of at least one RNA transcript in the extracted RNA; and

iii) diagnosing the subject with a disease and/or disorder, providing a treatment recommendation to the subject, monitoring the progression of a disease and/or disorder in the subject, or administering at least one therapeutic to the subject based on the expression level of the at least one RNA transcript.

24. The method of claim 23, wherein determining the expression level of the at least one RNA transcript in the extracted RNA comprises the use of quantitative PCR, reverse transcribing the at least one RNA transcript to produce cDNA, or a combination thereof.