Collection and Stabilization of Samples

1

COLLECTION AND STABILIZATION OF SAMPLES

Samples are the cornerstone of scientific research and diagnostic processes, serving as the foundation for experiments and analyses. The type of biological sample, the timing of collection, the sampling method, as well as storage and transport, are critical factors in all studies involving collected samples. Stabilizing DNA, RNA or proteins in biological samples constitute a significant challenge for researchers.

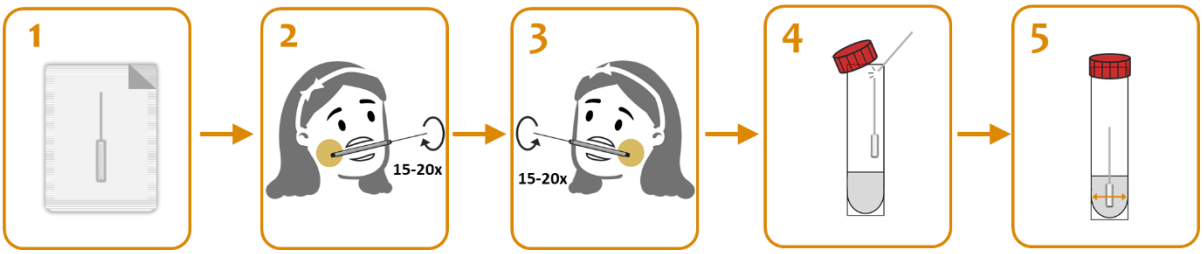
Proper preservation and storage are essential to maintain the integrity of genetic material from a wide range of biological samples. Tiaris® Sample Collection and Stabilization Kits are perfect for any genetic application, offering researchers a solution for sample collection, stabilization, and transport. We provide tools for the collection and stabilization of non-invasive samples such as buccal swabs, saliva, stool, urine, and vaginal samples, helping to ensure maximum quality of your samples.

Non-invasive sample types, such as saliva and urine, facilitate more personalized approaches to medicine. These methods allow for convenient, at-home collection and are versatile in applications like cancer detection and infectious disease screening. They are particularly valuable in situations where blood sampling is impractical or when healthcare systems face high demand and resource constraints.

Benefits of Non-Invasive Samples

BUCCAL SWAB COLLECTION AND STABILIZATION KIT

Buccal Swab Collection and Stabilization Kit is an appropriate system for the collection and preservation of buccal samples obtained through a buccal mucosa swab. Once the sample is collected, the swab is placed in a validated solution for long-term preservation. The kit includes swabs and tubes with the preservation solution.



Open the swab bag

Place the swab in the mouth and rub back and forth

Repeat the rub motion in the other side of mouth.

Break the swab at a breakpoint signal

Close tightly the tube and shake vigorously

Features

- **Non-toxic** preservation solution.
- Samples can be **preserved indefinitely**.
- **Compatible** with most nucleic acid isolation systems.

Applications

- Long-term stabilization of samples at room temperature.
- Collected sample is ready for DNA extraction.

REFERENCES	DESCRIPTION	FORMAT
TBK0307	BUCCAL SWAB COLLECTION & STABILIZATION KIT	50 units
TBK0308	BUCCAL SWAB COLLECTION & STABILIZATION KIT	100 units
TBK0309	BUCCAL SWAB COLLECTION & STABILIZATION KIT	200 units

Complementary Products

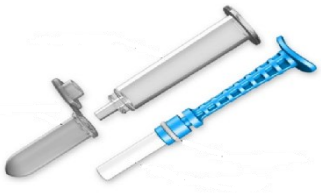
- ✓ **Buccal Swab Genomic DNA Purification Kit** (TBK0136, TBK0137)
- ✓ **HIGH-Q™ Spin Columns Buccal Swab Genomic DNA Purification Kit** (TBK0141, TBK0142)
- ✓ **TIARIS™ Body Fluid Direct PCR** (TBK1023)

SALIVA COLLECTION AND STABILIZATION KITS

Tiaris Biosciences provides different systems to collect saliva samples to stabilize DNA, RNA and proteins. Some of them, include pads to absorb the sample. The pad compression involved an additional step of purification removing mucilaginous components from saliva. The sample is immediately preserved by a stabilizing solution.

Saliva DNA Collection Kits

Saliva DNA collection systems include designs for the collection of samples from infants to adults attending to volume and content of epithelial cells. Saliva is stabilized for subsequent DNA extraction and downstream testing.



Micro-SAL™ Saliva

SimplOFy™ System

DNA-SAL™ Saliva

Super-SAL™ Saliva

Micro-SAL™ Saliva DNA Collection Kit

Micro•SAL™ Saliva Collection Kit is specially conceived for collecting **saliva samples from younger children**. The kit features a reduced-size collector with a small, soft pad that efficiently wicks saliva from the mouth, collecting up to a maximum of 500 µL. The collected saliva is then released from the absorbent pad by compressing it through a narrow-bore tube connected to a standard eppendorf tube.

Features

- **Non-invasive**, simple and painless saliva collection.
- Total Volume of saliva 0.5 mL.
- **Quick collection time**: 1-3 minutes.
- **Delivers clean sample** for immediate stabilization or long-term storage.

Applications

- Ideal choice for effective sampling of oral fluids/ whole saliva from infants.
- An excellent system valid for a variety of downstream applications such as PCR, genotyping, sequencing, etc.

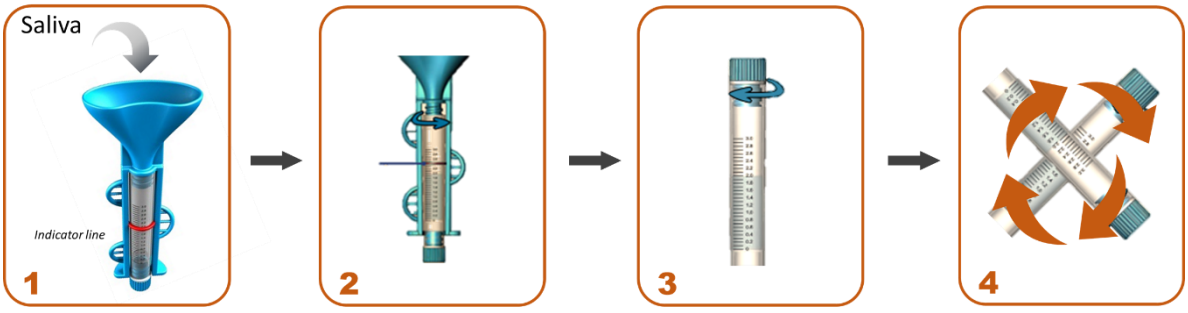
REFERENCES	DESCRIPTION	FORMAT
MRSAL-402	**Micro-Sal™ SALIVA DNA COLLECTION KIT**	50 units
MRSAL-403	**Micro-Sal™ SALIVA DNA COLLECTION KIT**	100 units

Complementary Products

- ✓ **Saliva Genomic DNA Purification Kit** (TBK0146, TBK0147)
- ✓ **HIGH-Q™ Spin Columns Saliva Genomic DNA Purification Kit** (TBK0151, TBK0152)
- ✓ **TIARIS™ Body Fluid Direct PCR** (TBK1023)

SimplOfy™ Saliva DNA Collection Kit

SimplOFy™ Saliva DNA Collection Kit is designed for the collection and stabilization of **whole saliva** for subsequent DNA extraction and downstream testing. This kit is an ideal choice for services requiring home collection and long-term DNA stabilization at the point of collection.



1. Collect saliva until it reaches indicator line.
2. Unscrew the funnel in the direction indicated.
3. Screw tightly the collection tube with the bottom cap.
4. Mix vigorously by tube inversion (20 times).

Features

- **Suitable for both manual and automated process**: collection tubes are compatible with automation, allowing for high throughput during extraction and subsequent analysis.
- **Easy-to-use attached funnel** to the collection tube.
- **Contains buffer** to preserve the integrity of DNA.
- Sample remains **stable at room temperature,** reducing transportation and storage costs.

Applications

- Ideal choice for services requiring home self-collection and long-term DNA stabilization at the point of collection.
- Long-term stabilization of samples at room temperature.
- Collected sample is ready for DNA extraction.

REFERENCES	DESCRIPTION	FORMAT
SIMPL-301	SimplOFy® SALIVA DNA COLLECTION KIT	50 units
SIMPL-301B	SimplOFy® SALIVA DNA COLLECTION KIT	100 units

Complementary Products

- ✓ **HIGH-Q™ Spin Columns Saliva Genomic DNA Purification Kit** (TBK0151, TBK0152)
- ✓ **Saliva Genomic DNA Purification Kit** (TBK0146, TBK0147)
- ✓ **TIARIS™ Body Fluid Direct PCR** (TBK1023)

DNA-SAL™ Saliva DNA Collection Kit

DNA-SAL™ Saliva DNA Collection Kit is intended for the collection of saliva enriched with epithelial cells for subsequent extraction of DNA from oral specimens.

Epithelial cells are harvested by abrasion of cells on the inside of the cheek, using a series of serrated edges on the platform of the Collection Device.

Features

- Saliva **sample enriched with buccal mucosal cells**.
- **Contains buffer** to preserve the integrity of DNA.
- Sample remains **stable at room temperature**, reducing transportation and storage costs.

Applications

- Ideal candidate for services requiring home collection and long-term DNA stabilization at the point of collection.
- Long-term stabilization of samples at room temperature.
- Collected sample is ready for DNA extraction.

SUPER-SAL™ Saliva DNA Collection Kit

SUPER-SAL™ Saliva Collection Kit is a universal sample collection system. It works by collection of sample by means of a highly absorbent cylindrical-shaped pad. The Super-SAL™ is intended as a high volume saliva collector (> 1.0 mL) providing a *clean* saliva specimen in approximately 1-3 minutes.

Features

- Includes a sample **volume adequacy indicator** that provides an indication of when sufficient saliva has been collected.
- **Sealed system**, designed to be highly amenable to transportation.

Applications

- No invasive collection of a broad range of samples: saliva, vaginal, urine, amniotic fluid, etc.
- Saliva collection from multiple animal species (cows, horses, pigs, cats, dogs, non human primates and humans).
- Valid to collect hormones, bacteria, viruses, certain drugs and proteins.
- The sample may be used immediately, stabilized for later analysis or sent to a laboratory for subsequent analysis.

REFERENCES	DESCRIPTION	FORMAT
DNAS-102	DNA-SAL™ SALIVA COLLECTION KIT	50 units
DNAS-102B	DNA-SAL™ SALIVA COLLECTION KIT	100 units
SSAL-601	SUPER-SAL™ SALIVA COLLECTION KIT	50 units
SSAL-601B	SUPER-SAL™ SALIVA COLLECTION KIT	500 units

Saliva RNA Collection Kits

PURE-SAL™ RNA Collection Kit

PURE-SAL™ RNA was developed for the controlled and standardized collection of RNA or protein biomarkers from oral fluid specimens for subsequent stabilization and analysis in life science and research applications. The harvested, purified saliva specimen is stabilized if required and available for downstream PCR, genotyping, sequencing, proteomics and other applications, depending upon the desired results.

Features

- Utilizes a **highly absorbent pad** to collect saliva, effectively removing a high percentage of mucinous material that can interfere with downstream assays.
- Total Volume: 1 mL of saliva.
- Compresses sample through a proprietary medium.
- **Removes cells** and unwanted components.
- **Delivers clean sample** for immediate stabilization or long-term storage.

Applications

- Platform for isolating liquid biopsy specimens in a single step.
- Cell free DNA or Cell free RNA.
- Isolation of exosomes.
- Downstream applications.

REFERENCES	DESCRIPTION	FORMAT
RPSAL-701	RNAPro-SAL™ COLLECTION KIT	50 units
RPSAL-702	RNAPro-SAL™ COLLECTION KIT	100 units
PRSAL-701R	PURE-SAL™ RNA COLLECTION KIT	50 units
PRSAL-702R	PURE-SAL™ RNA COLLECTION KITT	100 units

RNAPro-SAL™ Collection Kit

RNAPro-SAL™ was developed as an easy to use and cost effective tool for the split sample collection of rich sources of RNA miRNA, mRNA and proteins found in saliva. The proprietary RNAPro-SAL™ kit provides two equivalent samples of saliva which total 1.0 mL of saliva in 1-3 minutes. These may be analyzed later for either RNA or protein components. A unique built in Sample Volume Adequacy Indicator provides a visual indication that an adequate quantity of sample has been collected for downstream analysis and by a compression process, cells and unwanted components from the saliva are removed.

Features

- **Dual equivalent sample collection** by split of the collected liquid.
- Provides a **visual indication** of adequate sample collection for downstream analysis.
- **Remotion of cells** and unwanted components from the saliva.

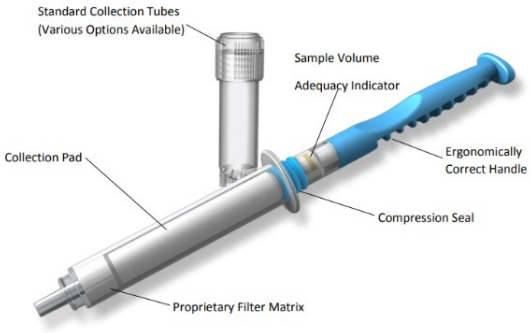
Applications

- Collection of mRNA, miRNA and proteins from saliva samples.
- Cell free DNA or Cell free RNA.
- Isolation of exosomes.
- Proteomics.

Saliva Protein Collection Kit

PURE-Sal™ Protein Collection Kit

PURE-Sal™-Protein Collection Kit provides a simple non-invasive and rapid platform for isolating *liquid biopsy* specimens including proteins and exosomes in a single step. The collected and purified saliva specimen is stabilized and ready for downstream applications, such as proteomics.



Features

- Utilizes a **highly absorbent pad** to collect saliva, effectively removing a high percentage of mucinous material that can interfere with downstream assays.
- Total Volume: 1 mL of saliva.
- Compresses sample through a proprietary medium for **protein preservation**.
- **Removes cells** and unwanted components.
- **Delivers clean** sample for immediate stabilization or long-term storage.

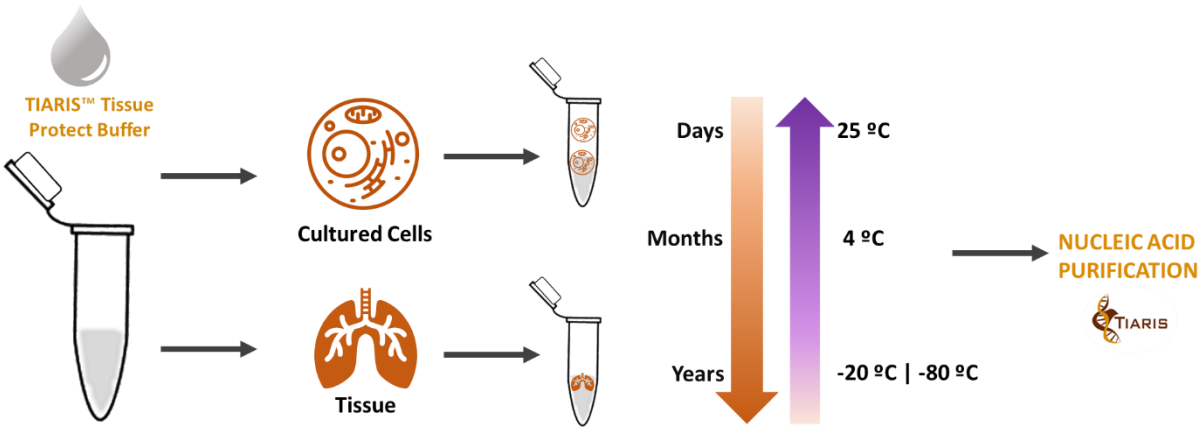
Applications

- Platform for isolating liquid biopsy specimens in a single step.
- Proteomic.
- Exosome isolation.

REFERENCES	DESCRIPTION	FORMAT
PRSAL-703P	PURE-SAL™ PROTEIN COLLECTION KIT	50 units
PRSAL-704P	PURE-SAL™ PROTEIN COLLECTION KIT	100 units

TISSUE COLLECTION AND STABILIZATION

TIARIS™ Tissue Protect Buffer is a highly effective solution for the stabilization and preservation of nucleic acids present in various tissues. Once the sample is placed in the solution, any nucleases present are immediately inactivated.



Features

- **Non-toxic** preservation solution.
- Suitable **for most tissues** (*ears, mouse tails, organs*), cultured cells, plants, bacteria, yeast, fungi, etc.
- **Compatible** with nucleic acid purification kits.

Applications

- Long-term stabilization of samples at room temperature.
- Collected sample is ready for genomic DNA extraction.

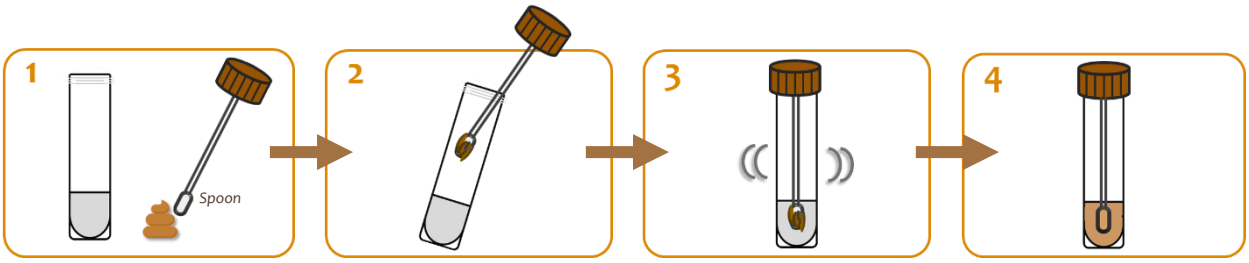
REFERENCES	DESCRIPTION	FORMAT
TBB0430	TIARIS™ TISSUE PROTECT BUFFER	50 x 1.5 mL
TBB0431	TIARIS™ TISSUE PROTECT BUFFER	100 mL
TBB0432	TIARIS™ TISSUE PROTECT BUFFER	500 mL

Complementary Products

- ✓ **HIGH-Q™ Spin Columns Tissue Genomic DNA Purification Kit** (TBK0163, TBK0164)
- ✓ **HIGH-Q™ Spin Columns Tissue Genomic RNA Purification Kit** (TBK0268, TBK0269)
- ✓ **TIARIS™ Tissue Direct PCR** (TBK1015, TBK1016)

STOOL SAMPLE COLLECTION AND STABILIZATION KIT

Stool Collection and Stabilization Kit allows for the collection, preservation, and stabilization of human and animal stool samples. The preservation solution is contained in a tube that includes a small spoon for easy sampling. The samples can be stored at room temperature, maintaining a constant microbial composition under these conditions.



1. Collect the sample on plastic wrap and transfer a portion with the spoon of the collection tube.
2. Soak the sample into the preservation solution. Close tightly the tube.
3. Mix well the sample by shaking.
4. Place the stool sample at ambient temperature or freeze at –20°C or –80°C (*recommended for long-term storage, > 6 months*).

Features

- Samples do not need to be processed immediately.
- Suitable for sample **preservation at room temperature.**
- **Preserves the integrity of nucleic acids and microbiota profiles.**
- **Compatible** with nucleic acid purification kits and procedures.

Applications

- Long-term stabilization of samples at room temperature.
- Collected sample is ready for DNA extraction.
- Compatible with diverse purification systems.

REFERENCES	DESCRIPTION	FORMAT
TBK0302	STOOL SAMPLE COLLECTION & STABILIZATION KIT	50 units
TBK0303	STOOL SAMPLE COLLECTION & STABILIZATION KIT	100 units
TBK0304	STOOL SAMPLE COLLECTION & STABILIZATION KIT	200 units

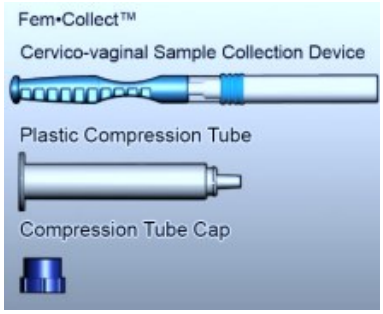
Complementary Products

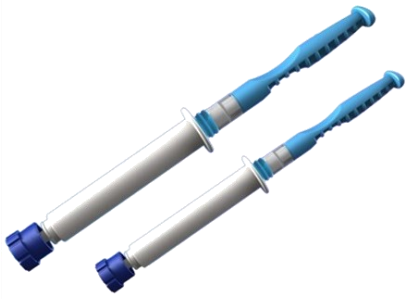
✓ **HIGH-Q™ Spin Columns Stool Genomic DNA Purification Kit** (TBK0289, TBK0290)

CERVICAL AND VAGINAL SAMPLE COLLECTION

Vaginal specimens collected using minimally invasive tools such as the FEM-COLLECT™ device may represent a means of self-collection, streamlining research protocols and at the same time presenting a more comfortable and private process for the subject. The FEM-COLLECT™ Cervicovaginal Specimen Collection Device uses a very safe, highly absorbent pad to gently harvest cells / DNA from the vaginal canal to be used for research purposes.

Cells / DNA adhere to the absorbent pad component of the FEM-COLLECT™ in a short collection process lasting 5 minutes. Upon removal of the device from the cervicovaginal canal the sample pad is immediately protected with a compression tube that preserves the integrity of the sample during transportation to a laboratory where downstream testing may be performed.





Features

- **Minimally invasive sample** collection.
- **Highly absorbent pad** to harvest cells from the vaginal canal.
- **Short collection process**.
- Sample remains **stable at room temperature**, reducing transportation and storage costs.
- Highly absorptive medium, collects a rich sample available for multiple downstream processes.

Applications

- More comfortable and private process to home self-sample collection and long-term DNA stabilization at the point of collection.
- Vaginal self-collection for screening programs.

REFERENCES	DESCRIPTION	FORMAT
CVGL-801	FEM-COLLECT® CERVICO-VAGINAL SAMPLE COLLECTION KIT	15 pack
CVGL-701	FEM-COLLECT® CERVICO-VAGINAL SAMPLE COLLECTION KIT	150 pack

Complementary Products

✓ **HIGH-Q™ Spin Columns Vaginal Genomic DNA Purification Kit** (TBK0175, TBK0176)

Biomimicry is the conscious emulation of life's genious.

Janine Benyus

Leonardo da Vinci (*1452–1519*), the quintessential polymath of the Renaissance, sought to replicate nature's mastery in all his inventions. His fascination with the mechanics of bird flight culminated in the Codex on the Flight of Birds, written in 1505, a remarkable document showcasing Leonardo's systematic analysis. He meticulously dissected birds to understand how their muscles, bones, and feathers worked in harmony to achieve lift and propulsion. The codex contains sketches of glider-like devices designed to soar through the air with fixed wings, reflecting his understanding of passive flight, akin to large birds like eagles. Within it, Leonardo explored concepts such as air pressure, resistance, and other principles that would later become fundamental to modern aerodynamics.

His studies of bird wings, including their structure, wing angle adjustments for controlling altitude and direction, and flight patterns, heavily influenced his designs for flying machines. One notable creation was the ornithopter, a device with mechanical wings that mimicked a bird's flapping motion. While it was never successfully built in his time, the ornithopter is recognized as a precursor to modern aviation and a brilliant example of Leonardo's biomimetic genius.

Beyond the ornithopter, Leonardo also conceptualized a helical air screw, an early version of the helicopter. This invention drew inspiration from the flight of spinning seeds that spiral as they fall, demonstrating his keen use of aerodynamics observed in nature. The air screw featured a spiral-shaped sail designed to compress air and generate lift, mirroring how seeds exploit air currents for dispersal. Although the technology to realize these ideas did not exist in his era, these designs highlight Leonardo's ability to draw inspiration from nature and envision possibilities far ahead of his time.

Leonardo's bird-inspired inventions were far from mere fantasies; they represented a profound belief in nature as the ultimate teacher. His dedication to studying birds and other natural systems laid the groundwork for modern aviation and biomimetic engineering. By combining observation, experimentation, and imagination, Leonardo not only celebrated the brilliance of nature but also reminded humanity of its capacity to innovate by learning from it. His work continues to inspire biomimicry today, showing that even in our technologically advanced world, nature holds answers to some of our most complex challenges.

#SeeBeyondLooking