

Isohelix

DNA Swabs and Sample Handling



DNA Buccal Swabs DNA Stabilisation and Isolation Kits

Isohelix
DNA Sampling and Purification

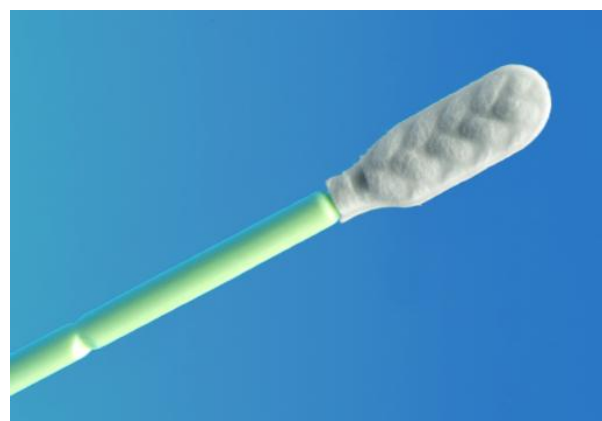
Isohelix an Integrated DNA strategy.

Each Isohelix product has been specifically designed and developed to improve all the DNA sampling steps from our original product; the DNA buccal swabs, right through to the DNA isolation. We have taken an integrated approach by looking at each individual step to improve yields, reduce sample losses and at the same time improve the handling procedures, the result maximises yields and quality of DNA.

Smarter Collection using Isohelix DNA Buccal Swabs

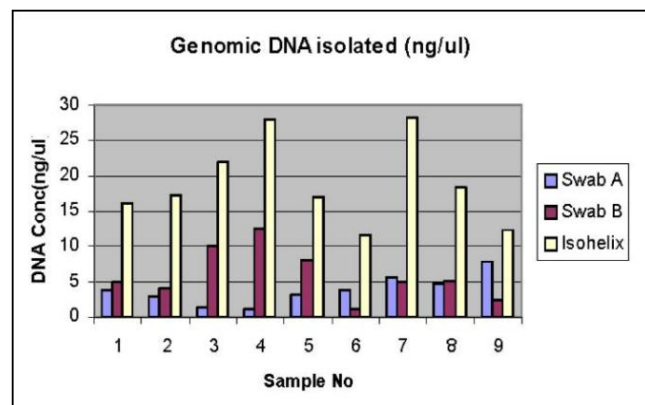
The Isohelix range of Buccal Swabs has been specifically designed to give increased yields of high quality buccal cell and genomic DNA. Buccal cell sampling offers a viable alternative to blood collection and, together with the Isohelix range of DNA Isolation and Stabilisation kits, enables high yields of pure, intact DNA to be collected easily and quickly. Isohelix swabs are suitable for both human and veterinary use and offer significant advantages over other swab designs in terms of efficiency of cell collection by the unique swab matrix, which combined with a quick release surface, maximises yields of DNA. Swab batches are ethylene oxide treated and routinely tested for human DNA contamination.

- ✓ **High yielding swabs for buccal cell DNA collection**
- ✓ **Unique swab matrix greatly improves DNA yields**
- ✓ **Alternative to blood collection**
- ✓ **Suitable for human and veterinary use**
- ✓ **Easy to handle and quick to use**



Isohelix swabs are used in:

- ✓ **Research Genotyping Applications**
- ✓ **Veterinary Genotyping and Diagnostics**
- ✓ **Paternity and Heredity Services**
- ✓ **Forensics and DNA Population Studies**



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DNA Buccal Swabs

SK-1S Isohelix Swab Cat. No: SK-1S

The SK-1S swab uses the unique swab matrix design to efficiently collect buccal cell samples. Following sampling you simply snap the shaft just above the swab head and place into the tube provided, then seal for containment.

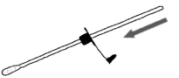
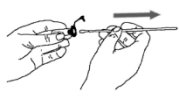

- ✓ *Swab matrix significantly improves DNA yields*
- ✓ *Various formats available with/without tubes*
- ✓ *Available in single and twin sterile packs*
- ✓ *Alternative to blood collection*







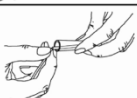
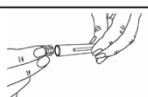
SK-2S Isohelix Swab Cat. No: SK-2S

The SK-2S has the same features as the SK-1S except that it includes a unique cap design which allows you to simply push the entire swab head from off the shaft into the collection tube after sampling. This format has the advantage of being easier to manipulate at the DNA isolation stage whether using manual or HT extraction methods.

Instructions for Isohelix SK-2S Buccal Swabs Stages 1 – 3 as for SK-1 swabs shown above

4		Slide the plastic cap over the swab handle with the flat side of the cap facing upwards and the swab facing downwards.
5		Insert the swab into the clear plastic tube and push the cap into place. Next, hold the cap while pulling the swab handle outwards to release the swab material into the tube.
6		Close the cap. The tube is now completely sealed.

Instructions for Isohelix SK-1S, SK-3S, SK-4S and SK-5S Buccal Swabs

1		Pull open the package from one end.
2		Remove one of the swabs from the tube.
3		Insert the swab into your mouth and rub firmly against the inside of your cheek or underneath lower or upper lip. For standard DNA collection rub for 1 minute and in all cases rub for a minimum of 20 seconds. Important – use reasonable, firm and solid pressure
4		Place the swab back into the tube. Do not touch the brush with your fingers.
5		Place your thumbnail in the small groove set in the handle, then snap the handle in two by bending to one side. Let the swab head fall into the tube.
6		Seal the tube securely with one of the caps.

SK-2S swab design showing special release cap and removal of swab head from shaft



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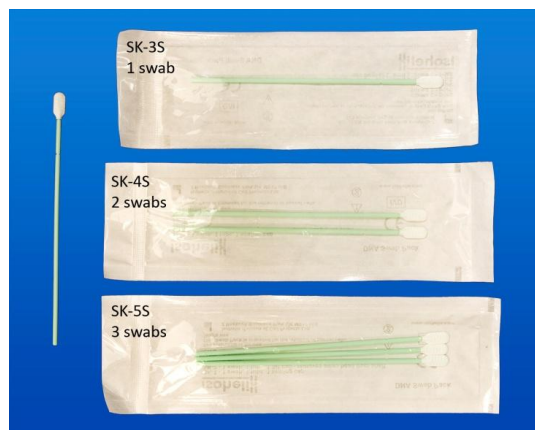
Other Isohelix Swab Formats

Other Isohelix Swab Formats

- Cat. No: SK-3S** **1 swab per wrapper**
Cat. No: SK-4S **2 swabs per wrapper**
Cat. No: SK-5S **3 swabs per wrapper**

The SK-3S, SK-4S and SK-5S formats all use the same design and materials used in the SK-1S and SK-2S formats, and have exactly the same advantages for efficiently collecting buccal cell samples.

Like the SK-1S you can quickly snap the shaft at the breakpoint if you wish to store the swab in a tube. If this is your preferred method, Cell Projects has available pre capped tubes that can be ordered with these formats.



SK3, SK4 and SK5 swab formats

MS Mini DNA Isohelix Swabs

Cat. No: MS-01 / MS-02 / MS-03 / MS-04

The MS-01, MS-02, MS-03, MS-04 Mini DNA Isohelix Swabs use exactly the same matrix material as the SK swabs so there is significant history of use but have reduced dimensions and area. The width of the swab has been reduced from 8mm to 6mm and employs a slightly different shaft attachment enabling a DNA yield close to the SK swabs. The swabs are Ethylene Oxide sterilised and are available in different swabs numbers per wrapper, the break point has been reduced compared to the SK swab allowing it to be used in smaller tubes.

Benefits

- ✓ *Smaller surface area size*
- ✓ *Very high pro rata DNA yields*
- ✓ *Fits smaller tubes so can be 96 racked*
- ✓ *Lower break point to fit shorter tubes*
- ✓ *Uses identical swab material to SK series*



MS and SK swabs showing size difference

Applications

Small Mammals, other Animals and Invertebrates
Particularly of interest for Mice Genotyping
Automation friendly

Buccal Swab Accessories

Transport packs (Cat. No: TP-50) including outer printed bag with absorbent pads for shipping buccal swabs.

Bar-Coded Labels (Cat. No: BC/3A/50) pre-printed in triplicate, 25 x 10mm on cryogenic labels, easily attached to tubes for identification.

Proteinase K (Cat. No: PK/22, PK/11) lyophilized in 22mg and 11mg vial sizes.



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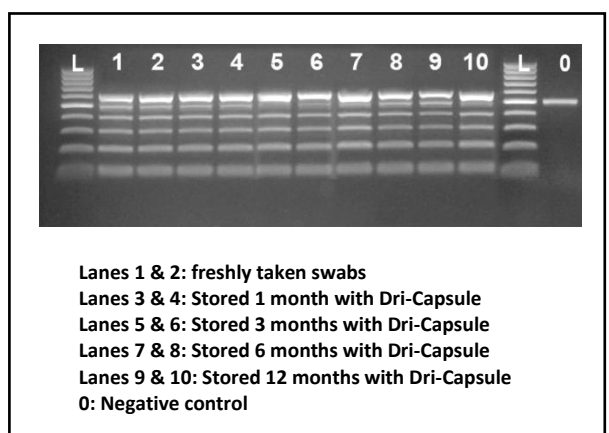
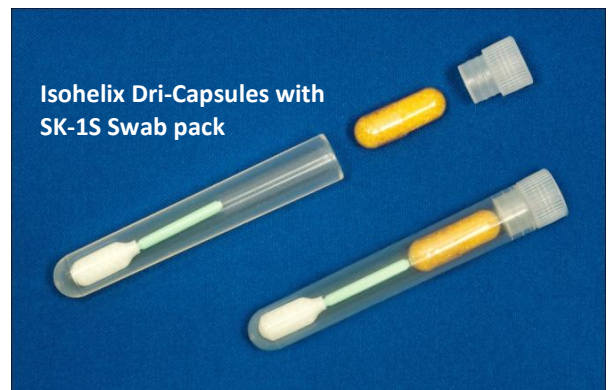
Buccal swab stabilisation

Isohelix Dri-Capsules cat. No: SGC-50

Designed for use with Isohelix SK-1S swabs, these silica gel capsules offer an easy to use alternative to chemical stabilisation for long term stability of the buccal DNA on the swab head prior to isolation.

- ✓ **Long term stability at room temperature**
- ✓ **Liquid free alternative to BuccalFix**
- ✓ **Easy to handle by patients and professionals**
- ✓ **Designed for use with SK-1 swab packs**
- ✓ **Ideal for remote sample collection**

Long term stability studies show that the stability of DNA samples on SK-1S swabs stored with Isohelix Dri-Capsules is maintained over a period of at least 3 years. The study is ongoing and is expected to confirm an increased period of stability well in excess of the 3 years tested so far.



BuccalFix Stabilisation and Lysis Buffers Cat. No: BFX

The Isohelix BuccalFix range of stabilising buffers are designed to completely stabilise the DNA in samples from DNA buccal swabs by inhibiting all enzymatic and microbial activity that occurs following any buccal sampling. The DNA is fully stabilised and importantly, the structure and integrity of the DNA is fully maintained for further downstream processing applications. Once stabilised the DNA can be stored in the BuccalFix at Room Temperature for periods in excess of 2 years, and then easily be processed for DNA isolation by the addition of Proteinase K and subsequent isolation steps. The BuccalFix buffers are offered in bulk, as well as pre-filled into various tube formats to suit both manual and more automated applications where 1D and 2D bar coding, and auto de-cap options are valuable. Additionally the new MS mini swabs will fit into the smaller tubes where 96 tube racking is crucial.



- ✓ **Stabilises your DNA Long Term**
- ✓ **Maintains DNA Structural Integrity**
- ✓ **Improves DNA Yields and Purity**
- ✓ **Room Temperature Storage**
- ✓ **Choice of Collection Tubes – Manual/HT**
- ✓ **Accommodates various swabs designs**
- ✓ **Compatible with most DNA Isolation Kits**

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Buccal DNA Isolation Kits

BuccalFix Plus DNA Isolation Kit

Cat. No: BFP-50

The BuccalFix Plus DNA Isolation Kits are designed to easily and quickly purify DNA already stored in BuccalFix Stabilisation buffers. The kit comes with all the reagents required to perform the necessary isolation steps, including Proteinase K, to produce DNA with high yields and purity for all downstream processing applications. The protocol is extremely flexible and easily adjusted, especially if there are varying volumes to be purified. The average processing time for 0.5ml is well under 1 hour, and no solvents, alcohol or other buffers are required.

- ✓ *Specifically Designed for DNA Buccal Swabs.*
- ✓ *Can be scaled up or down for varying volumes.*
- ✓ *Gives extremely high yields and purity ratios*
- ✓ *Rapid and Easy to Use working protocols*
- ✓ *Can be used for manual or automated formats*
- ✓ *No Solvents or Ethanol*
- ✓ *Negligible levels of co-eluted RNA*



Swab	A260/280	A260/230	DNA yield µg
1	1.81	1.96	2.94
2	1.76	1.64	4.95
3	1.85	1.59	2.52
4	1.75	1.68	5.28
5	1.86	2.14	3.12
6	1.79	1.52	1.99
7	1.86	1.41	2.63
8	1.84	1.53	8.22
9	1.79	2.03	3.11

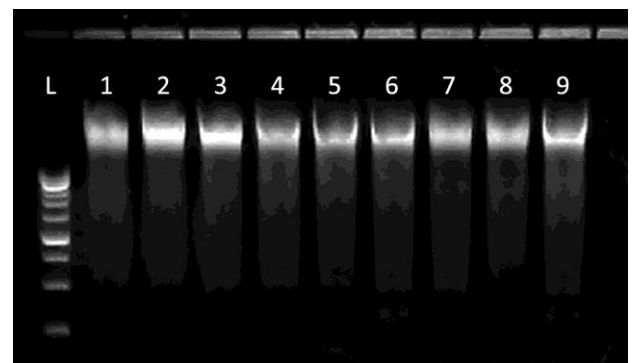
Purity Ratios from 9 single adult swabs stabilized in BuccalFix and isolated through the BuccalFix DNA Isolation Kit. DNA yields measured by Qubit dsDNA BR assay.

Buccal-Prep Plus DNA Isolation Kit

Cat. No: BPP-50

The Buccal-Prep Plus DNA Isolation Kit is our very latest precipitation based chemistry combining all the optimised buffers to fully lyse and simply purify DNA from Buccal swabs. The kit provides a fast protocol to produce high yields and purity for all downstream processing applications. No solvents, alcohol, or other external buffers are required yet there are few processing steps thus creating a fast and easy cycle process time.

- ✓ *Latest optimised chemistry for highest purities*
- ✓ *Includes the Lysis and Stabilization buffers*
- ✓ *High purity values as measured by A260/280*
- ✓ *High yields of intact DNA with negligible RNA*
- ✓ *All the same advantages as BuccalFix Plus kits*



High molecular weight genomic DNA isolated from buccal swabs using the Buccal-Prep Plus DNA kit

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Other Buccal DNA Kits

Isohelix Xtreme DNA Kit

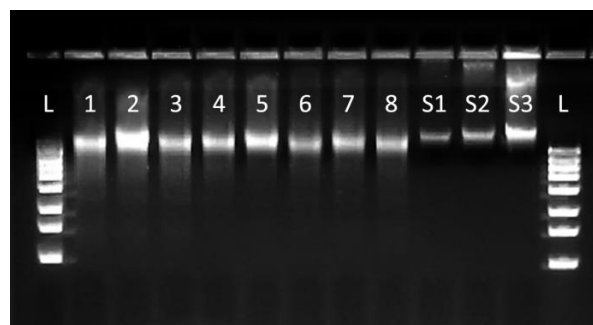
Cat. No: XME-5/50

The Isohelix Xtreme DNA kit is a silica membrane based spin column DNA purification kit designed to isolate highly purified, high molecular weight genomic DNA from buccal swabs, with minimal losses. The DNA is suitable for use in even the most demanding downstream applications.

- ✓ **Very high purity DNA**
- ✓ **DNA free from trace PCR inhibitors**
- ✓ **Optimised for buccal DNA**
- ✓ **Manual or high throughput formats**
- ✓ **No solvent based chemicals**
- ✓ **Maintains integrity of the genomic DNA**
- ✓ **Improved success in the more demanding downstream applications**



High molecular weight, intact DNA from Xtreme DNA Kit



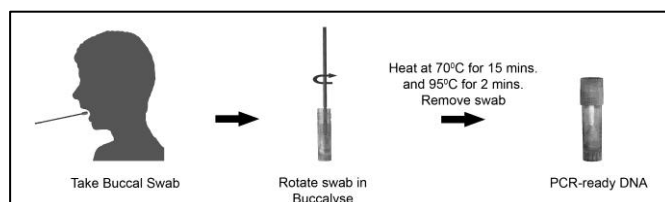
Samples 1 – 8: Xtreme isolated Isohelix buccal swabs
S1, S2 & S3: Commercial Human Genomic DNA @ 7.5, 15 & 30ng/μl

Sample	Yield in ug (by Qubit dsDNA BR assay)	A260/280	A260/230
1	2.44	1.83	2.65
2	2.6	1.86	2.91
3	1.84	1.82	3.42
4	2.34	1.86	3.32
5	2.38	1.94	3.56
6	1.85	1.78	1.90
7	2.26	1.94	3.51
8	1.86	1.85	1.92

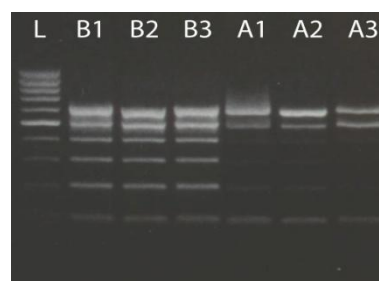
Isohelix BEK Single Step/Single Tube DNA Release Kit Cat. No: BEK-50

The Isohelix Buccalyse DNA Release Kits produce high DNA yields from buccal swabs (2 to 4μg average total yield from an adult) offering significant advantages of ease of handling, speed and ease of sample preparation with rapid extraction of PCR-ready DNA using a single tube method not requiring centrifugation.

- ✓ **Quick and easy, single tube/single step kit**
- ✓ **PCR-ready DNA in under 20 minutes**
- ✓ **DNA suitable for simple and multiplex PCR**
- ✓ **Ideal for qPCR DNA samples**
- ✓ **Outperforms alternative single tube kits**
- ✓ **Suitable for High Throughput and Robotics**
- ✓ **Developed for DNA buccal swabs**



Comparison of Buccalyse to an alternative single tube



L = 100bp Ladder
B1 = Buccalyse sample 1
B2 = Buccalyse sample 2
B3 = Buccalyse sample 3
A1 = Alternative sample 1
A2 = Alternative sample 2
A3 = Alternative sample 3

The gel shows good quality, intact DNA released from 3 Buccalyse samples, and its superior performance against alternative single tube kits, in terms of quality and quantity of the DNA as demonstrated using the Isohelix DQC Kit.

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Isohelix Swab and DNA Sample Handling Products Catalogue	
Cat. No.	DNA Buccal swabs
SK-1S	100 x 1 swab with 5ml tube and cap, individually wrapped and ethylene oxide treated.
SK-2S	100 x 1 swab with 2ml tube and special release cap, individually wrapped and ethylene oxide treated.
SK-3S	250 x 1 swab individually wrapped and ethylene oxide treated.
SK-4S	500 swabs, 250 x 2 swabs per wrapper, ethylene oxide treated and packed 250 units to a box.
SK-5S	600 swabs, 200 x 3 swabs per wrapper, ethylene oxide treated and packed 200 units to a box.
MS-01	Mini Swabs - 100 x 1 swab with 5ml tube, individually wrapped and ethylene oxide treated.
MS-02	Mini Swabs - 250 x 1 swab individually wrapped and ethylene oxide treated.
MS-03	Mini Swabs - 250 x 2 swabs per wrapper, ethylene oxide treated.
MS-04	Mini Swabs - 200 x 3 swabs per wrapper, ethylene oxide treated.
	Buccal Swab Stabilisation
SGC-50	50 x Isohelix Dri-Capsules for long term DNA stability on SK1 swabs. Individually foil wrapped.
BFX/S1/05/50	50 x BuccalFix tubes using Sarstedt 2ml screw cap tubes pre-filled with 0.5ml BuccalFix stabilisation buffer
BFX/F3/05/50	50 x BuccalFix tubes using FluidX 2ml bulk packed bar-coded tubes, pre-filled with 0.5ml BuccalFix stabilisation buffer
	DNA Isolation and Handling Kits
XME-50	<i>Xtreme</i> DNA Kit for isolating purified DNA from buccal swabs using spin column technology. For 50 reactions.
BFP-50	BuccalFix Plus DNA Isolation kit for isolating purified DNA from buccal swabs stabilised in BuccalFix tubes. 50 reactions.
BPP-50	Buccal-Prep Plus DNA Isolation Kit – full precipitation based kit for isolating purified DNA from buccal swabs. 50 reactions.
BEK-50	Buccalyse DNA Release Kit – a quick and simple one tube method for releasing DNA from buccal swabs for 50 reactions.
BFX-25	BuccalFix stabilisation buffer bulk pack. 25ml, sufficient for stabilising 50 buccal swabs.
	Sample size kits
SGC-3	3x Isohelix Dri-Capsules for long term DNA stability on SK1 swabs, individually foil wrapped.
BFX/S1/05/3	3 x BuccalFix tubes using Sarstedt 2ml screw cap tubes pre-filled with 0.5ml BuccalFix stabilisation buffer
BFP-3	BuccalFix DNA Isolation kit for isolating purified DNA from buccal swabs stabilised in BuccalFix tubes. For 3 reactions.
BPP-3	Buccal-Prep DNA Isolation Kit – full precipitation based kit for isolating purified DNA from buccal swabs. For 3 reactions.
XME-5	<i>Xtreme</i> DNA Kit for isolating purified DNA from buccal swabs using spin column technology. For 5 reactions.
BEK-3	Buccalyse DNA Release Kit – a quick and simple one tube method for releasing DNA from buccal swabs for 3 reactions.
	Accessories
TP-50	50 Transport Packs with absorbent pads for shipping buccal swab samples
BC/3A/50	50 x 3 triplicate Pre-Printed barcodes 25mm x 10mm printed on cryogenic labels
PK/22	22mg Lyophilised Proteinase K – fully tested with instructions
PK/11	11mg Lyophilised Proteinase K – fully tested with instructions

Further information including downloadable instruction leaflets, and technical application notes describing the use of the buccal swabs, Dri-Capsules and DNA Kits in greater detail, can be found under the support section of the Isohelix website: www.isohelix.com/support

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