

DNA Options – Frequently Asked Questions

A requirement for registration with ALCA is to have the animal DNA typed and Parent Verified. With the change from MiP (Micro-satellite) to the new SNP (Single-nucleotide polymorphism) format many questions have arisen. This document is a guide to assist members through the transition.

The change to SNP testing gives Genetic Laboratories the ability to compare many more genetic markers for an animal than previously, providing users with the latest technology in genetic testing. This advance allows for more accurate Parent Verification which is beneficial when problems arise.

New Zealand and other countries already use the SNP format for DNA & Parent Verification.

DNA MiP & SNP Case Numbers

The Animal Details screen on the ALCA Database notes what DNA format the animal has been tested with – MiP and/or SNP

In the more recent cases, it will identify which laboratory the testing took place, eg. 'Z' before the number will mean Zoetis and 'N' will stand for Neogen.

If there is no letter before the DNA case number, the results would have been processed through the University of Queensland Animal Genetics Laboratory (UQ) now known as Neogen.

If after checking the ALCA database you are still unsure as to which laboratory was used, then please contact the Lowline Registrar – lowline.registrar@abri.une.edu.au

Lowline Animal Details WANAMARA FIRECRACKER

[ALCA Website](#) [Animal Enquiry](#) [Member Enquiry](#) [Online Transactions](#)

Identifier/Tattoo:	WANJ277
Herdbook #:	10930
Sex:	Female
Birth Date:	23/01/2013
Colour:	Black
Calving Year:	2013
Status:	Active
Registration Status:	Registered
Sire:	WANAMARA CASANOVA
Dam:	WANAMARA WILDFIRE (ET)
Breeder:	G & J KNIGHT
Current Owner:	G & J KNIGHT
Transaction History:	[View]
DNA MiP #:	381688
DNA SNP #:	Z12343654
Progeny:	[7 - View]

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When purchasing registered Australian Lowline cattle, it is recommended you ask for a copy of the DNA results from the breeder/owner. You will then know where and in which format (MiP or SNP) the DNA and PV was done. You will also have the DNA Case number if further information is required.

What is MiP testing?

Microsatellite (MiP) DNA testing has been the method used for DNA & Parent Verification until recently. This is usually performed using DNA collected from tail hair samples.

What is SNP testing?

Single-nucleotide polymorphism (SNP) is the latest and more accurate form of DNA testing as it identifies and matches many more genetic markers.

Improvements in technology have meant that DNA laboratories are now phasing out the older MiP testing in preference to the latest SNP testing method.

SNP testing for Parent Verification from hair or tissue samples is a more powerful tool and avoids confusion that may have arisen in the past. For example, SNP testing can better differentiate sires or dams that are closely related.

How do I DNA my animals using the new SNP method?

SNP testing can be done using tail hairs (as with MiP) or with a tissue sample.

Allflex Tissue Sampling Units (TSU) take an ear punch sample, which can be used for DNA, Pestivirus or other serology testing, at the same time as applying the NLIS or NAIT ear tag.

https://www.allflex.global/au/product_cat/tissue-sampling/

Neogen prefers tissue samples for SNP testing. **A tail hair sample may incur an additional cost** to process. It is advisable to check directly with Neogen.

For further information visit – naa@NEOGEN.com

<https://www.neogen.com/solutions/parentage/seek sire-parentage/>



Zoetis will accept tail hair or tissue samples.

For further information visit – genetics.au@zoetis.com

https://genetics.zoetis.com/australia/testing_and_results.aspx



The ALCA website has ALCA Forms, Guidelines and Instructions for genetic testing as well as other useful information in the Members Area. **Please click [here](#) to view.**

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Which DNA Laboratory should I use?

In Australia, **Neogen Australasia** or **Zoetis Genetics Australia** can be used for SNP testing. It is a matter of personal preference.

- **Neogen** no longer processes DNA samples as MiP results. All tests are now SNP form
- **Zoetis** is phasing out MiP testing over the next 6 months so SNP testing will be the only format routinely available from 1 July 2021

Do I need to retest my whole herd with SNP?

You will need to retest your breeding bulls and females so all the progeny can be SNP tested.

OPTION 1 – take new DNA samples from each animal (tail hairs or tissue samples)

OPTION 2 - have the previous DNA samples retested using SNP.

Some old stored samples might not be successful with retesting because of insufficient remaining DNA or contamination. In this case, a new sample (hair or tissue) will need to be submitted for SNP testing.

With bulls that may be dead, an AI semen straw can be submitted to the laboratory for testing.

PLEASE NOTE: All DNA samples that were processed at Neogen from September 2017 until May 2019 are now being stored free of charge at Zoetis. If you want a sample retested from that time period you will have to ask Zoetis to process the sample.

Until 30 June 2021, Zoetis are offering a reduced price of \$12 (+GST) for ALCA members to have a sample processed for **SNP Only** (new sample or re-test of stored sample). It is advisable for members to attend to any DNA matters promptly.

How do I change from using one DNA Laboratory to another?

Transfer of results/samples from Neogen to Zoetis - there will be an hourly charge of \$100 ex GST (billed in 15 min increments) for the time taken. Note that any postage fees are passed on in full if samples need posting.

The alternative & cheaper option is to send new samples to Zoetis to be processed for SNP.

Transfer of results/samples from Zoetis to Neogen - usually does not involve a fee unless it is a labour intensive exercise to collect the samples – then it will be a per hour cost but a quote will be given before any action is taken.

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How do I use the new SNP testing on a calf if one or both parents have MiP DNA?

MiPs + MiPs ✓

MiP results cannot be compared to SNP DNA results for Parent Verification.

SNPs + SNPs ✓

This means that if both parents are MiP tested, the progeny also needs to be MiP tested for Parent Verification to be analysed and confirmed.

SNPs + MiPs ✗

If both parents have been SNP tested, the progeny can be SNP tested and Parent verification can be analysed.

Please Note: For ALCA to accept Parent Verification for an animal, **BOTH** parents need to be analysed together against the DNA profile of the progeny (ie. The sire cannot be approved as a parent at one laboratory and the dam approved at another laboratory).

If PV is being done by Zoetis and a parent is not on file, Zoetis will contact the Lowline Registrar who will send a copy of the parent results for processing.

Neogen will charge \$11 (+GST) for a copy of MiP Result Certificate held at their facility.

What can I do if I want to SNP test a calf and one parent is MiP tested but SNP retesting cannot be done?

The way to overcome this problem is to have MiP testing done for the calf so Parent Verification can be confirmed. Also apply for the calf to have SNP testing processed so any progeny in the future from that animal can be SNP tested.

If I have a calf resulting from an old embryo, what DNA test should I use?

You should MiP test your embryo calf for Parent Verification and also have it SNP tested to allow PV to be performed on its future progeny.

If I have a calf resulting from an AI but the AI sire is only MiP tested what should I do?

You should MiP test your calf for Parent Verification & also have it SNP tested for future progeny. Alternately you can submit an AI straw for SNP verification.

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Are all AI Sires SNP tested?

In November 2018 ALCA paid for the retesting of all the AI Sires on the ALCA AI Sires List belonging to current ALCA members at that time.

Not all re-testing was successful. Many samples were old & sufficient DNA could not be recovered from the stored samples.

Those AI Sires that were successful will have both MiP & SNP numbers noted on the Animal Details screen on the ALCA database.

PLEASE NOTE: If you are going to purchase semen, check the ALCA database to see if the bull has a SNP DNA number. If it hasn't, you should contact the owner of the semen and ask for them to have the SNP testing done for that AI Sire.

- Alternatively, don't purchase semen from a bull unless it is SNP tested. This will alleviate the possible problem of you not being able to Parent Verify and register the progeny of the AI bull.
- **ALCA Council will now be requiring all members who are selling semen to have their bulls retested for a SNP profile**, if they are not already done so. From this date (19/01/2021) forward, having an SNP test completed will be a prerequisite for approval as an AI Sire.

If I have semen (AI straws) in storage and the bull is now dead, how can I get the bull SNP tested?

Send a straw of semen to either Neogen or Zoetis to be SNP tested.

It can be posted in the mail directly to the laboratory for testing. Put the straws into individual ziplock bags and wrap in cardboard or put inside an old pen tube or a similar container to protect it from Australia Post processing. The straws don't need to be kept frozen.

Make sure the sample is clearly labelled with the name and identification number of the bull. You should also give the sample a corresponding number from a Hair Sample Card to identify the sample on laboratory paperwork.

I have very old embryos in storage that I want to use in the future, what should I do?

Up until the 30 June 2021, progeny from old embryos can be Parent Verified using MiP testing at Zoetis. After this date, routine MiP testing will no longer be available.

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However, after the cut-off date for MiP testing, Zoetis has agreed to do a couple of Special MiP Profile panels for ALCA members for any animals that cannot be Parent Verified using SNP. The first of these will be in December 2021 so any request and samples for MiP testing need to be at Zoetis by 1 December 2021. They may run another, one-off panel of MiP tests mid June 2022.

Please note: This option is only for members and animals where there is no other option to Parent Verify other than by using MiP.

Council is suggesting that any old embryos in storage be implanted as soon as possible.

Council has discussed this issue at length. If the Flush for the embryos has been registered with ALCA and Embryo certificates can be provided, the progeny **may be** eligible for Deemed Registration with the submission of further documentation from the Vet who implanted the embryo. Each application must be approved by Council and will be dealt with on its own merit.

Council suggests old embryos be implanted in recipients as soon as possible. There is no guarantee of eligibility for Deemed Registration for progeny of old embryos without the appropriate paperwork.

What is the most cost-effective way to change to SNP testing?

Start organising your herd for SNP testing now and don't leave it until the last minute as you will miss the Zoetis deadline of 30 June 2021 for a reduced price of \$12 (+GST) for **SNP testing only**. This can be a retest of a sample stored at Zoetis or a new tail hair/tissue sample.

SNP test any bulls and breeding females you are using so all progeny can be Parent Verified using SNP.

If you have to use MiP testing for Parent Verification for any progeny it needs to be done before 30 June 2021. Have the progeny SNP tested at the same time so any future calves from that animal can be Parent Verified using SNP.

If you have further questions please email the Lowline Registrar – lowline.registrar@abri.une.edu.au

Don't panic about converting to SNP testing. It is not a complicated process and if you take it one step at a time you will soon have all your herd SNP tested.

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