

DNA Options – Frequently Asked Questions

As a requirement for the registration of animals with ALCA it is necessary to have the cattle DNA typed and Parent Verified. With the changing of formats from MiP (Micro-satellite) to the new SNP (Single-nucleotide polymorphism) format there are many questions that need to be answered.

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 allows Parent Verification to be more accurate which is beneficial if there is a problem with identifying the correct parent of an animal due to the close family relationships.

New Zealand and other overseas countries 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 for – MiP and/or SNP

In most 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) which is now being run by Neogen at the same facility.

If you are unsure of which laboratory was used, please email the Lowline Registrar – office@lowlinecattleassoc.com.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
Transfer History:	[View]
DNA MiP #:	381688
DNA SNP #:	Z12343654
Progeny:	[7 - View]

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If you purchase registered Australian Lowline cattle, it is suggested you ask for a copy of the DNA results from the breeder/owner at purchase. You will then know where and in which format (MiP or SNP) the DNA and PV was done. You will 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 up until recently. This is usually done using DNA 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 many more genetic markers.

Improvements in technology have meant that most 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 we may have seen 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 prefer tissue samples for SNP testing. A tail hair sample incurs an additional cost to process the hair samples.

Further information should be sought from Neogen – naa@NEOGEN.com
<https://www.neogen.com/solutions/parentage/seek sire-parentage/>



Zoetis will accept tail hair or tissue samples.

For further information contact Zoetis – 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** -
<https://www.lowlinecattleassoc.com.au/members-area>

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What DNA Laboratory should I use?

In Australia, **Neogen Australasia**, now situated at the University of Queensland Animal Genetics laboratory, or **Zoetis Genetics Australia** can be used for SNP testing. It is a matter of personal preference.

Do I need to re-test my whole herd for SNP?

- **Neogen & Zoetis** no longer process DNA samples as MiP results. All tests are now SNP format.

You will need to re-test your breeding bulls and females so all the herd is SNP tested.

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

OPTION 2 - have the previous DNA samples re-tested using the SNP method.

Some old stored samples might not be successful with re-testing because of insufficient DNA on old samples or contamination so then a new sample (hair or tissue) should be submitted for SNP testing.

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

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

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 labor-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	✓
SNPs + SNPs	✓
SNPs + MiPs	✗

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

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.

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.

What can I do if I want to SNP test a calf and one parent is MiP tested but SNP re-testing 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 at the same time so any progeny in the future from that animal can be SNP tested.

InfogeneNZ at Massey University in New Zealand still offer MiP testing.

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

You should MiP test your embryo calf for Parent Verification & also have it SNP tested for future progeny.

InfogeneNZ are at Massey University in New Zealand and are the only laboratory who are offering MIP tests for Parent Verification.

Follow this link for information regarding the InfogeneNZ form -

<https://infogenenz.co.nz/collections/cattle-testing/products/bovine-test-request>

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Infogene NZ MiP testing

1. Fill out the online form with details of calf and parentage
2. You will be required to submit the parentage MiP profiles in order to proceed with InfogeneNZ MiP testing - ALCA have copies of some animals otherwise contact Neogen or Zoetis, wherever the parent samples were originally submitted to.
3. Samples can be sent in by hair or tissue.
4. Turnaround is between 5-10 business days but you can pay for a priority service also.
5. All animals will still require a SNP profile which InfogeneNZ can provide using a partner Laboratory (6-8 week turnaround) or you can continue using Zoetis or Neogen for the SNP profile by sending them another calf sample for a SNP profile.

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

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 Recording with the provision 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 has also agreed that that Heritage embryos which have parents with only DNA Blood Case numbers may be eligible for Deemed Recording as long as the required documentation is presented for Council approval.

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

If possible, contact the owner of the bull or whoever you purchased the semen from, & ask if they can send in a semen straw for retesting for SNP.

OR

If you have another straw of the semen, send it to Neogen or Zoetis for SNP testing.

OR

You can MiP test your calf for Parent Verification & also have it SNP tested for future progeny.

InfogeneNZ at Massey University in New Zealand still offer MiP testing.

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Are all AI Sires SNP tested?

In November 2018 ALCA paid for the re-testing 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 regulations now require all bulls approved as AI Sires to have a SNP profile.

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.

If you have further questions, please email the Lowline Registrar – office@lowlinecattleassoc.com.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.