

MiraiBio  
**DNASIS<sup>®</sup> MAX**

**Version 2.6**

User's Manual (Addendum)

Consensus Sequence

**For Research Use Only**  
**Part no. X-XXXXX-XXXXX**

## **Introduction**

Thank you for purchasing DNASIS® MAX from MiraiBio, Inc.

This manual explains new features added when you upgraded from DNASIS® MAX V2.5 to DNASIS® MAX V2.6.

## **Manual Outline**

This manual is comprised of the following sections:

- |           |  |
|-----------|--|
| Chapter 1 | Consensus Sequence                                 |
|           | Explains the added consensus sequence function.    |
| Chapter 2 | Parameters   |
|           | Explains the settings contents for each parameter. |

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## Chapter 1 Consensus Sequence

From the alignment results, using the most common base for each base sequence, a consensus sequence may be constructed.

\* Please refer to page 120 of the DNASIS MAX Operation Manual, "Creating a Consensus Sequence", for more information.

### 1.1 Added Features

In DNASIS MAX V2.5 the only supported method for determining a consensus sequence was to convert atop ambiguity codes but in DNASIS MAX V2.6, other methods may be chosen.

#### 1.1.1 Conversion Method

The conversion methods are described below.

Conversion Method	Description	Example
Perfect Match	(Only Perfect Match)	'A'+ 'A'+ 'A' = 'A'
Only	Only those that match perfectly are used; the rest are treated as N.	'A'+ 'A'+ 'C' = 'N' 'A'+ 'G'+ 'C' = 'N'
Perfect Match or Partial Match	(Perfect Match or Partial Match)	'A'+ 'A'+ 'A' = 'A'
Partial Match	Only those that perfectly or partially match are used, and the rest are treated as N.	'A'+ 'A'+ 'C' = 'A' 'A'+ 'G'+ 'C' = 'N'
Ambiguity code	(Ambiguity code)	'A'+ 'A'+ 'A' = 'A'
	The majority determines; if the number is the same, it is treated as an ambiguity code.	'A'+ 'A'+ 'C' = 'A' 'A'+ 'G'+ 'C' = 'V'

#### Note on Partial Matching

If the compared base ratio is higher than the ratio set in the Preferences dialog, Sequence tab, "Match more than" field, then a partial match is determined.

For example, when creating a consensus sequence from three sequences, if the value set in the "Match more than" field is set to 66%, the results will vary from using 67%.

In the images below, the portions highlighted in yellow represent complete matches and the portions highlighted in green represent partial matches.

#### When 66% is set in the [Match more than] Field

	10                      20
Sequence	5' a a a a a a a a g g g g g g c c c t
Sequence	6' a a a g g g c c c g g g c c c c t t
Sequence	g g c t g c t c t t g c t t t c t t t
Consensus	A A A A G N N N C N T G G G C N T C C T T

#### When 67% is set in the [Match more than] Field

	10                      20
Sequence	5' a a a a a a a a a a g g g g g g c c c t
Sequence	6' a a a a g g g g c c c t g g g c c c t c t t
Sequence	g g c t g c t c t t t c t c t t c t t t
Consensus	A N N N N N N N N N N G N N N N N C N N T

### 1.1.2 About Gaps

When complete matches only are used for conversions, if even one gap exists, it is treated as N.

When complete or partial matches are used for conversions, or when ambiguity codes are used for conversions, even in cases with the largest gaps, the gap will not be used, and the next highest one will be used.

### 1.1.3 The Conversion Target Sequence

All sequences at the point of analysis execution are treated as targets.

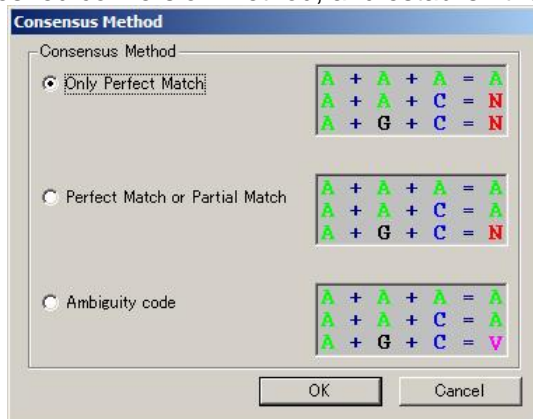
### 1.1.4 About Ambiguity Codes

Please refer to page 249 of the DNASIS MAX Operation Manual, which includes an Ambiguity Code List, for more information.

## 1.2 Creating a consensus sequence

Choose the [Sequence]-[Make Consensus] menu.

The Consensus Conversion Method Settings dialog will display, so choose the p desired conversion method, and establish the consensus sequence.



\* Please refer to section 2.1, "Consensus Conversion Method Settings dialog", for more information.

## Consensus Sequence Display

<Display When [Only Perfect Match] Is Selected>

Tutorial Data 1	Sequence	ATGATCATCC CCTCTCTGA GGAGCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Test 02	Sequence	ATGATCATCC CCTCTCTGA GGCCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Test 03	Sequence	ATGATCATCC CCTCTCTCGA GGCCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Perfect Match	Consensus	ATGATCATCC CCTCTCTGA GGAGCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Tutorial Data 1	Sequence	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Test 02	Sequence	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Test 03	Sequence	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Perfect Match	Consensus	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Tutorial Data 1	Sequence	GGCTACATTA AACATGAGGC AAGAAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Test 02	Sequence	GGCTACATTA AACATGAGGC AAGAAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Test 03	Sequence	GGCTACATTA AACATGAGGC AAGACCAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Perfect Match	Consensus	GGCTACATTA AACATGAGGC AAGAAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Tutorial Data 1	Sequence	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG
Test 02	Sequence	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG
Test 03	Sequence	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG
Perfect Match	Consensus	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG

<Display When [Perfect Match or Partial Match] Is Selected>

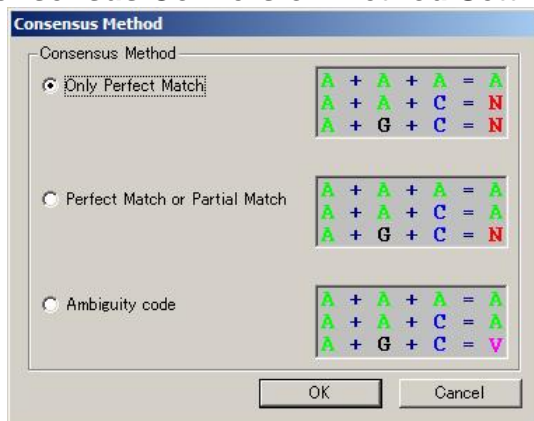
Tutorial Data 1	Sequence	ATGATCATCC CCTCTCTGA GGAGCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Test 02	Sequence	ATGATCATCC CCTCTCTGA GGCCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Test 03	Sequence	ATGATCATCC CCTCTCTCGA GGCCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Partial Match	Consensus	ATGATCATCC CCTCTCTGA GGAGCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Tutorial Data 1	Sequence	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Test 02	Sequence	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Test 03	Sequence	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Partial Match	Consensus	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Tutorial Data 1	Sequence	GGCTACATTA AACATGAGGC AAGAAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Test 02	Sequence	GGCTACATTA AACATGAGGC AAGAAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Test 03	Sequence	GGCTACATTA AACATGAGGC AAGACCAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Partial Match	Consensus	GGCTACATTA AACATGAGGC AAGAAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Tutorial Data 1	Sequence	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG
Test 02	Sequence	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG
Test 03	Sequence	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG
Partial Match	Consensus	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG

<Display When [Ambiguity Code] Is Selected>

Tutorial Data 1	Sequence	ATGATCATCC CCTCTCTGA GGAGCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Test 02	Sequence	ATGATCATCC CCTCTCTGA GGCCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Test 03	Sequence	ATGATCATCC CCTCTCTCGA GGCCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Perfect Match	Consensus	ATGATCATCC CCTCTCTGA GGAGCTGGAG TCCCTCAAGT ACAGTGACCT GCAGAACTTA
Tutorial Data 1	Sequence	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Test 02	Sequence	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Test 03	Sequence	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Perfect Match	Consensus	GCCAAAGATC TGGGTCTCCG GGCCAACCTG ACCGCAACCA AGTTGTTAAA AGCCTTGAAA
Tutorial Data 1	Sequence	GGCTACATTA AACATGAGGC AAGAAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Test 02	Sequence	GGCTACATTA AACATGAGGC AAGAAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Test 03	Sequence	GGCTACATTA AACATGAGGC AAGACCAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Perfect Match	Consensus	GGCTACATTA AACATGAGGC AAGAAGGA AATGAGAATC AGGATGAG TCAAACTTCT
Tutorial Data 1	Sequence	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG
Test 02	Sequence	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG
Test 03	Sequence	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG
Perfect Match	Consensus	GCATCCTCTT GTGATGAGAC TGAGATACAG ATCAGCAACC AGGAAGAAGC TGAGAGACAG

## Chapter 2 Description of Parameters

### 2.1 Consensus Conversion Method Settings Dialog



Item	Description
Consensus Method	Specifies the consensus conversion method.
Only Perfect Match	Utilizes "Only Perfect Match" as the conversion method.
Perfect Match or Partial Match	Utilizes "Perfect or Partial Match" as the conversion method.
Ambiguity code	Utilizes "Ambiguity Code" as the conversion method.
OK Button	Closes the dialog. Creates the consensus sequence, and displays it in the Sequence View.
Cancel Button	Closes the dialog without creating a consensus sequence.