

## Application Note

MagXtract® 3200, a fully automated nucleic acid extraction and PCR setup system using MACHEREY-NAGEL's NucleoMag® DNA Microbiome kit.



CE IVD FDA



### Magnetic Bead

Fast and efficient automated nucleic acid purifications from various bio-specimens.



### PCR Setup

Automatically and precisely dispense eluates, PCR reagents into PCR plate.



### Open Platform

Comprehensive protocols creation and adaption for purification and PCR setup.



### Whirl Mixing

Patented whirl-and-stir mixing approach to maximize the efficiency of purifications.



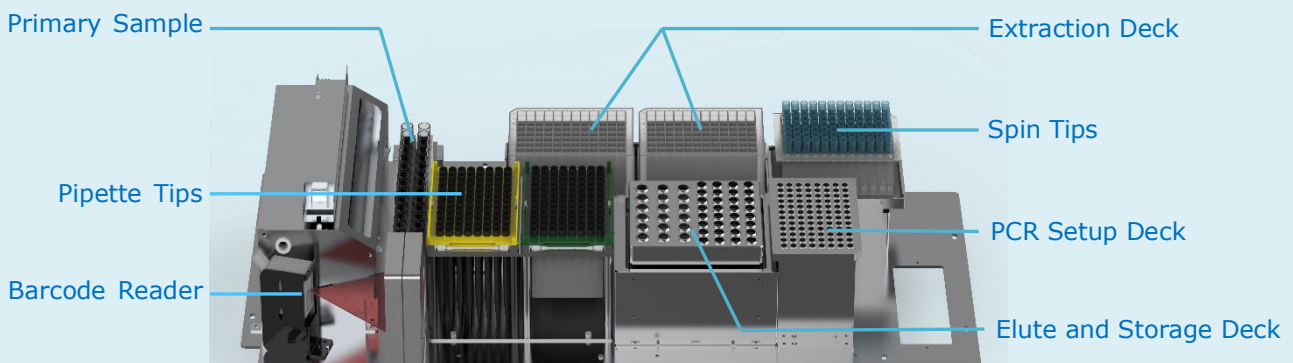
### UV / HEPA

Safeguard against the contamination with UV light and HEPA.



### Cool Station

Cooling control for eluates storage and reagent kits to maintain samples stability.



# NucleoMag® DNA Microbiome

Automated extraction of bacteria DNA from stool sample on the **MagXtract 3200**

## Introduction

The commensal microbiome is important for human and animal health. Several studies indicate that specific changes in the microbiome involve in the development of various diseases. Molecular biological examination can provide useful data to understand microbiome. MACHEREY-NAGEL developed the magnetic bead based NucleoMag® DNA Microbiome kit allowing the automated purification of nucleic acids from stool or soil specimen. Chroma ATE provides high quality automated instrument, MagXtract 3200, for nucleic acid extraction. Through using NucleoMag® DNA Microbiome kit combining with MagXtract 3200, laboratory scientists will conduct examinations in a safe, accurate, and efficient procedure.

## MagXtract 3200 Specification

<b>Description</b>	<b>Automated nucleic acid extraction and liquid handling system</b>
<b>Capacity</b>	Max. 32, 16-sample per run
<b>Weight</b>	70 kg (± 5kg)

<b>Dimensions</b>	721mm x 530mm x 567mm (W x D x H)
-------------------	--------------------------------------

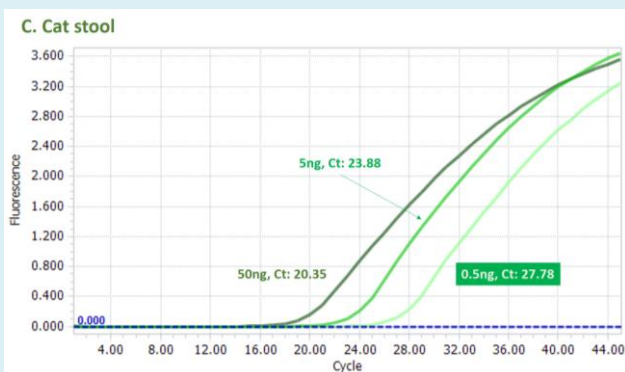
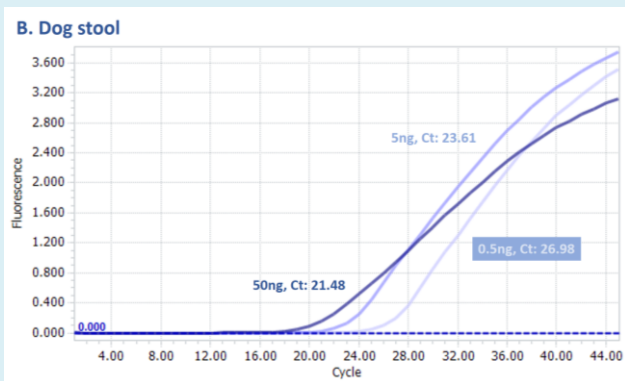
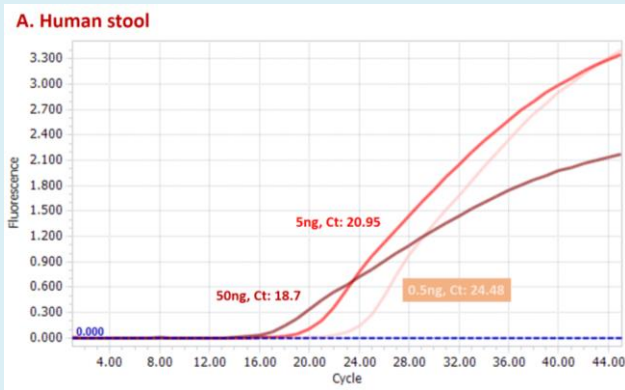
## Excellent Performance

We evaluated the performance of purification of genomic DNA from 50mg stool samples using the NucleoMag® DNA Microbiome kit and MagXtract 3200. High yield and purity of extracted genomic DNA from stools are shown below table. The extracted DNA for downstream qPCR application is also conducted as below figure.

Sample (50mg)	Conc. (ng/µl)	Yield (µg)	Purity (260/280)	Purity (260/230)
Human stool	19.3	1.6	1.92	1.63
Dog stool	41.6	3.3	1.97	2.09
Cat stool	16.1	1.3	1.98	1.59

**Table. High yield and purity of extracted genomic DNA from stools.** Different source of stool were added into NucleoMag® DNA Microbiome kit and followed the extraction procedure on the MagXtract 3200 instrument. Genomic DNA quality were evaluated using Nanodrop ONE (ThermoFisher).

**Figure. Downstream qPCR application.** All the gDNA template in qPCR reaction are normalized to 0.5, 5 and 50ng/reaction. And these extracted samples are detected *Bifidobacterium* positive using qPCR. A. Human stool, B. Dog stool, C. Cat stool.



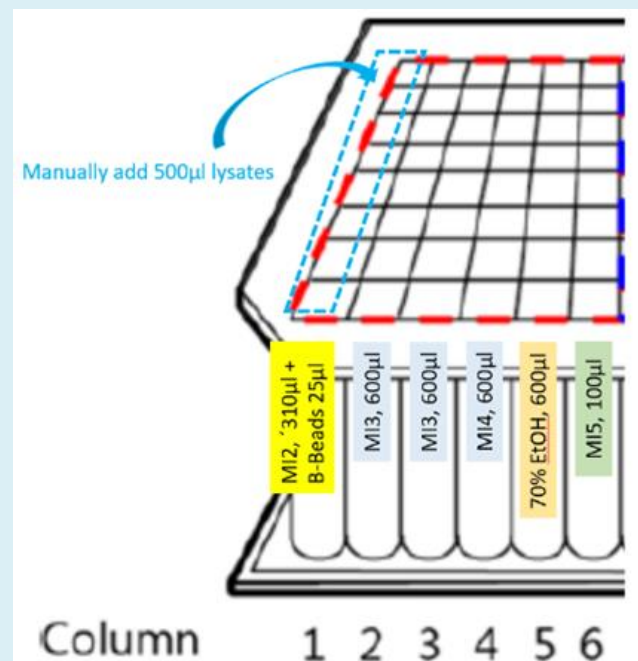
**Open System and Automation Solution**

MagXtract 3200 allows the authorized user to edit protocols including nucleic acid extraction and PCR preparation. High flexibility application can fit most magnetic based extraction kits and PCR reagent kits.

**Open System** – Based on MACHEREY-NAGEL extraction kit IFU, optimize the detailed factor to make excellent performance.

**Automation Solution** – Replace the manual steps including not only extraction but also PCR preparation.

Note. According to NucleoMag® DNA Microbiome IFU, the lysates should be processed manually in advance. The layout of extraction buffer in 96 deep well plate for automation, please refer to below picture.



1. Binding
2. Collecting beads
3. Washing x 4
4. Vaporizing (drying)
5. Eluting
6. Transferring eluate to storage vial
7. Dispensing qPCR premix to each vial
8. Adding template to each vial

It saves about 90% hands-on time!

### MagXtract 3200 GUI

Three operating modes: full run, preparation and extraction.

MagXtract 3200 software provides the protocol-based control to streamline the workflows. The stepwise GUI and touchscreen control guide the user through the complication of the assay setup, from sample loading to the consumable placement.

For more information please contact

**MACHEREY-NAGEL** Bioanalysis technical support: [bio-tech@mn-net.com](mailto:bio-tech@mn-net.com)

**Chroma ATE** Technical support: [tech-support.LSI@chroma.com.tw](mailto:tech-support.LSI@chroma.com.tw)

### Order Information

Product	REF
<b>NucleoMag® DNA</b>	744330.1 (96 preps)
<b>Microbiome</b>	744330.4 (384 preps)
<b>MagXtract 3200</b>	9-49200002
<b>(CE-IVD)</b>	
<b>Spin tip in box</b>	A94-000135
<b>Filtered tip (50µl)</b>	A94-000130
<b>Filtered tip (1000µl)</b>	A94-000131
<b>96 deep well plate</b>	Please contact Chroma ATE
<b>Customized accessories</b>	
<b>Sample drawer</b>	13 x 75 mm / 16 x 100 mm
<b>Elute and storage deck</b>	We can modify the number of hole to fit your application