# Understanding Liposome Flux Assays in the context of a Bacterial Sodium Voltage Gated Channels (NavAb)

## Biological data analysis in R

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# Table of contents

# Introduction

# Chart of NavAb affinity constants for different ions

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| $H^+$ | ?? |

**Table 1:** NavAb affinity constants

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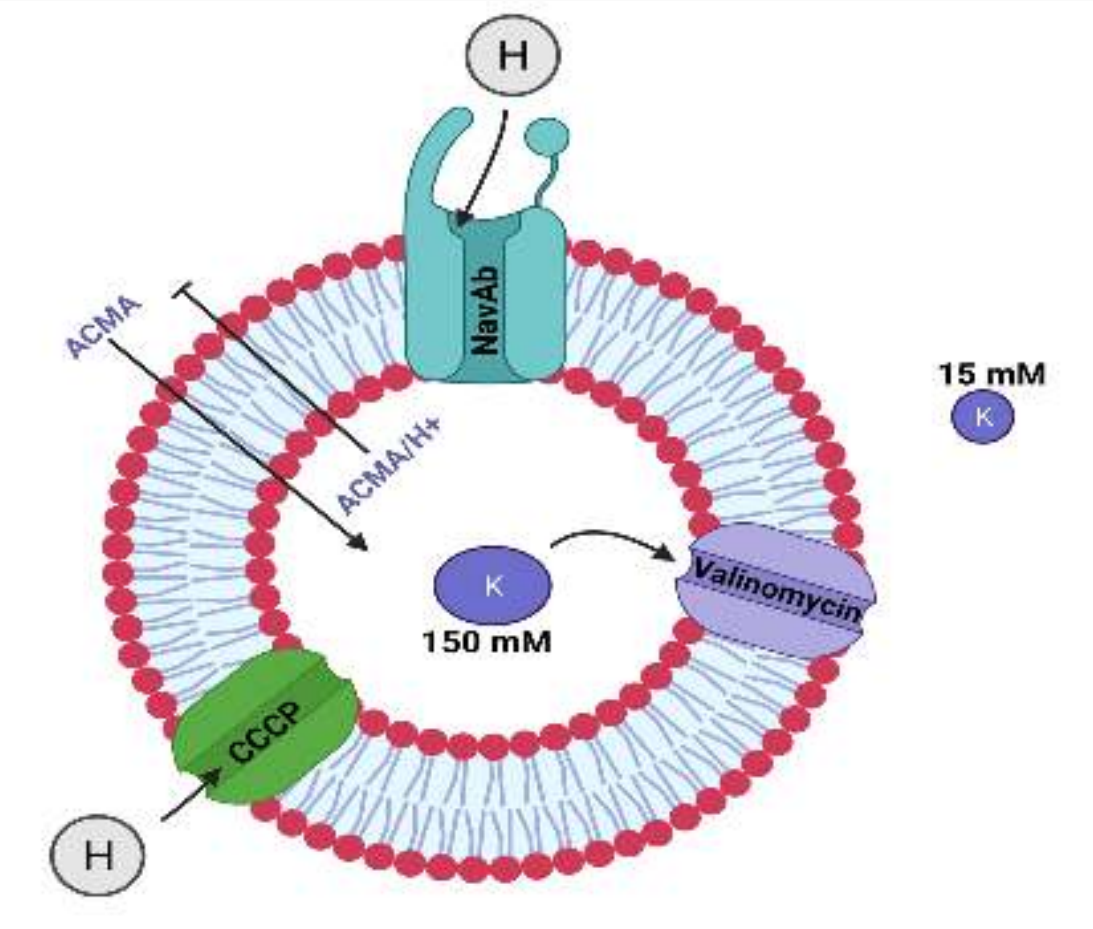


**Figure 1:** $Na^+$-insert liposome

# Practical image of experiment

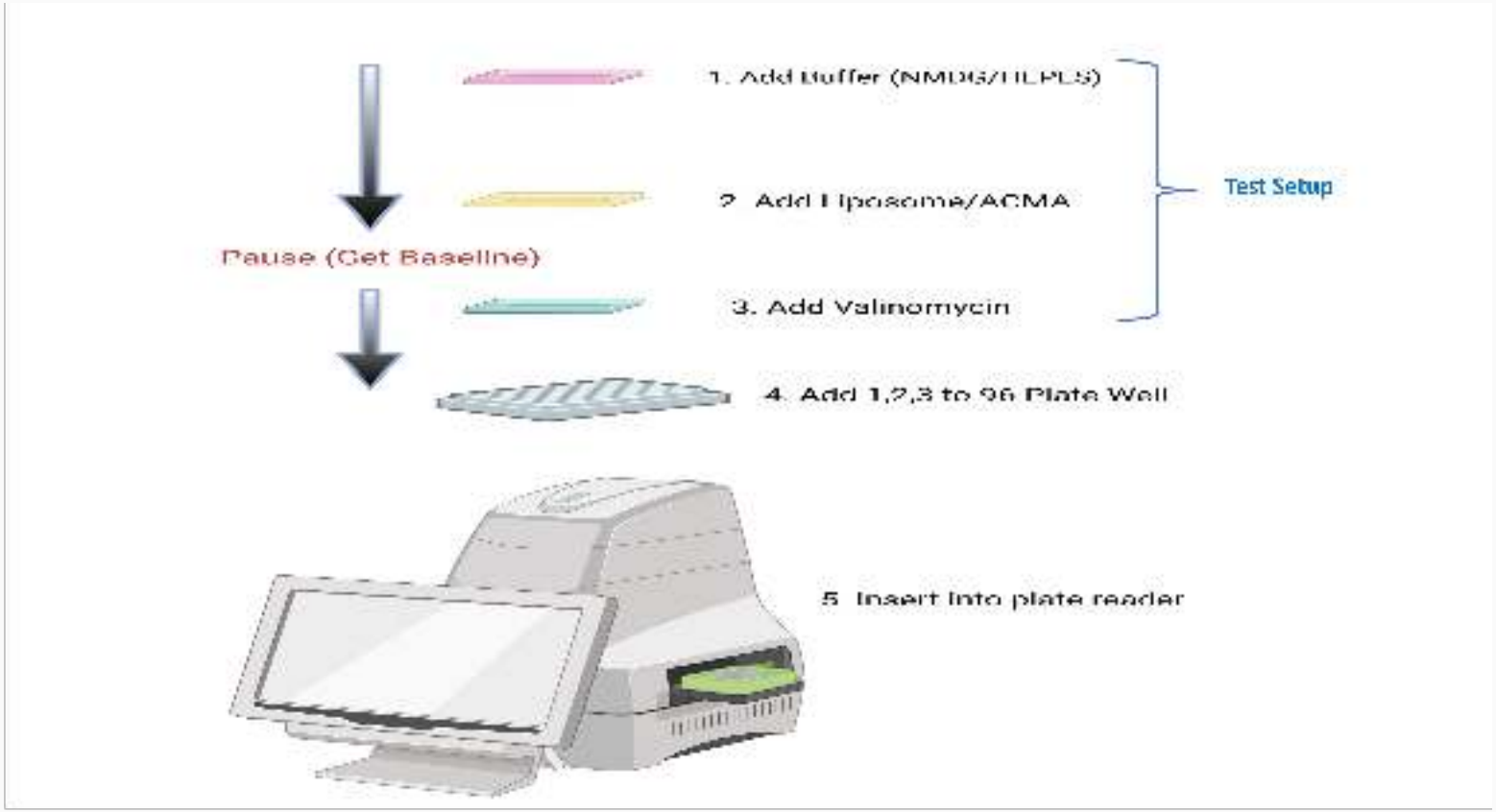


**Figure 2:** experiment

# Diagnostic results in Excel

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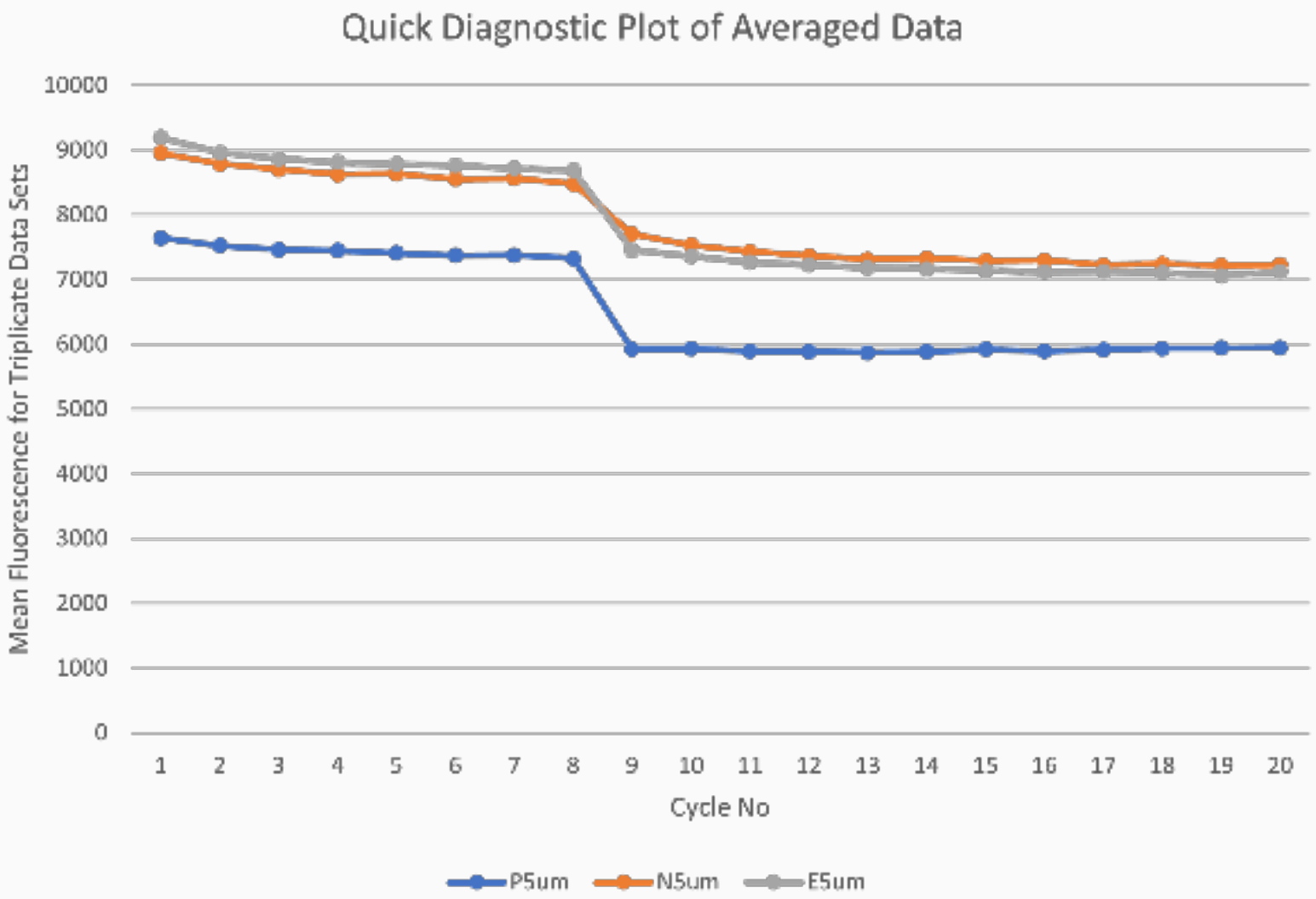
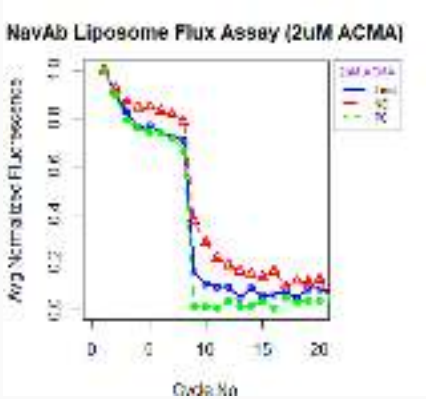
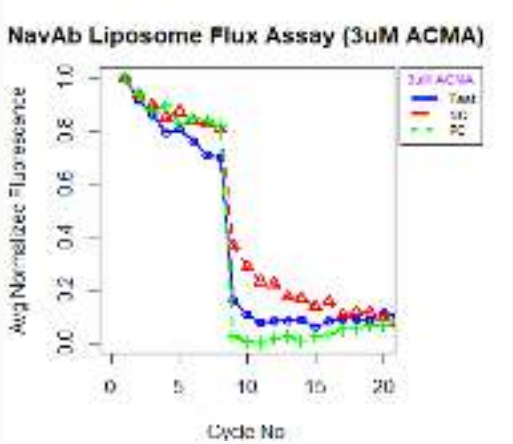



**Figure 3:** $Na^+$-insert liposome

# Normalized Results (Makes all the sense in the world)

# Fluorescence measured at 2,3,5 $\mu$M



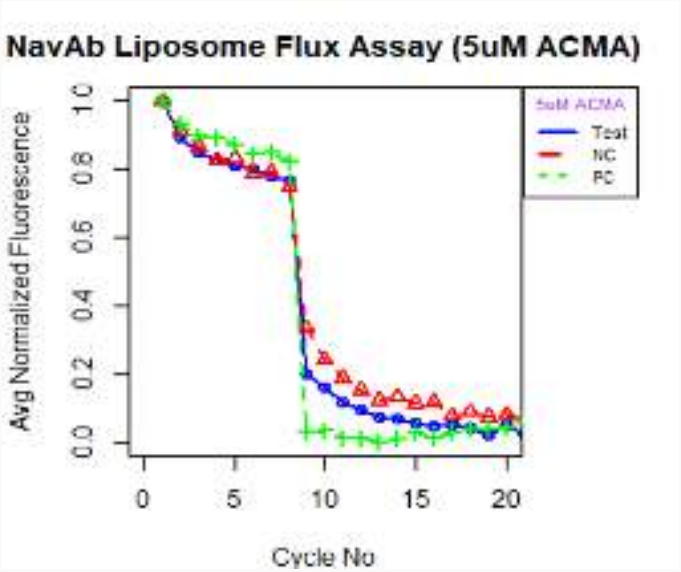




**Figure 4:** Legend: Noramlized fluorescence in R within the signal zone

# Fluorescence measured with $K^+$ vs $Cs^+$ inside the liposome $\mu$M

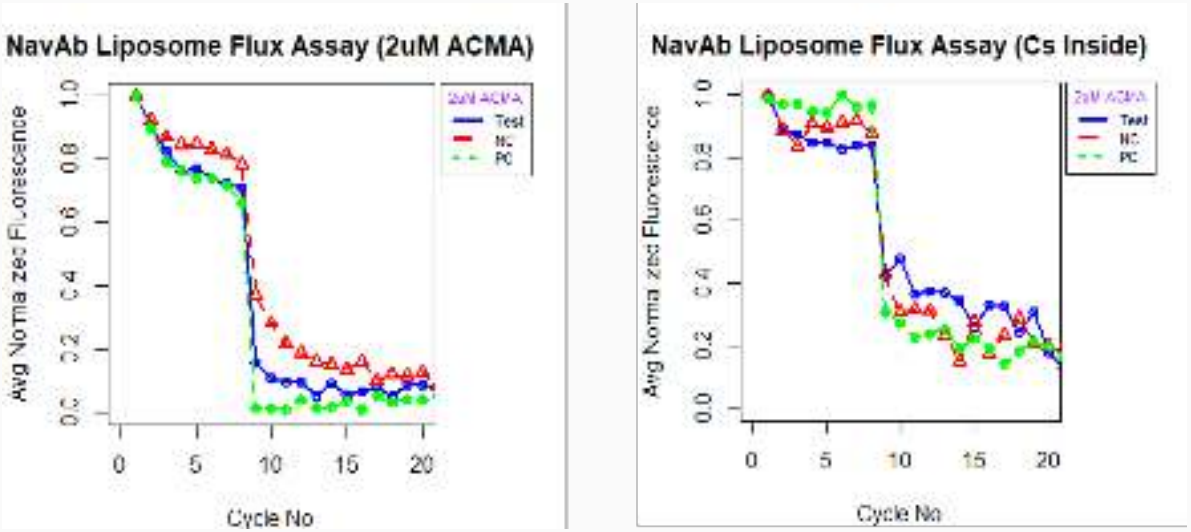



**Figure 5:** NavAb K-conductivity is stronger than Cs-conductivity as indicated by the initial affinity table

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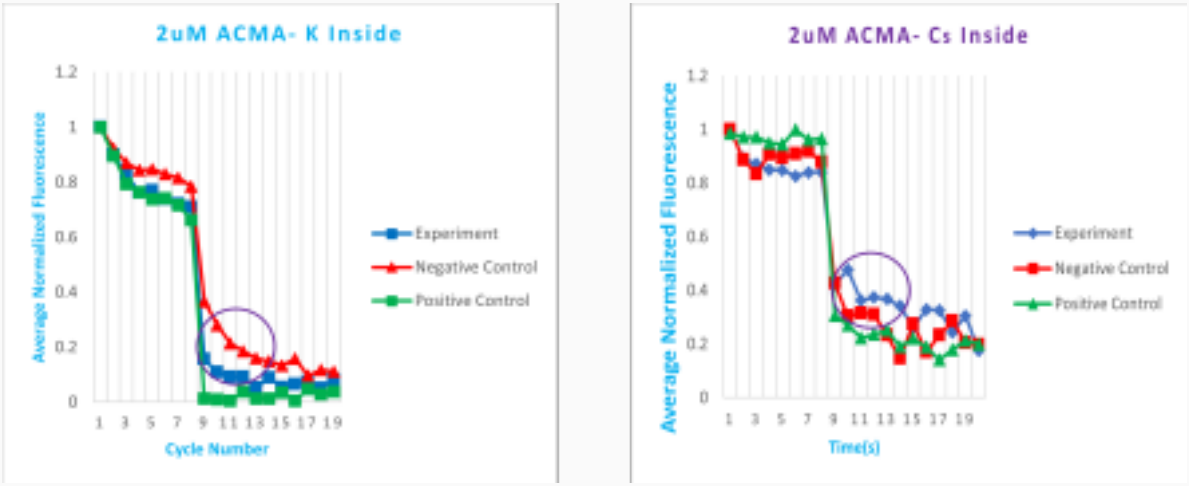


**Figure 6:** NavAb K-conductivity is stronger than Cs-conductivity as indicated by the initial affinity table

# ACMA dosage at 2,3,4,5 $\mu$M

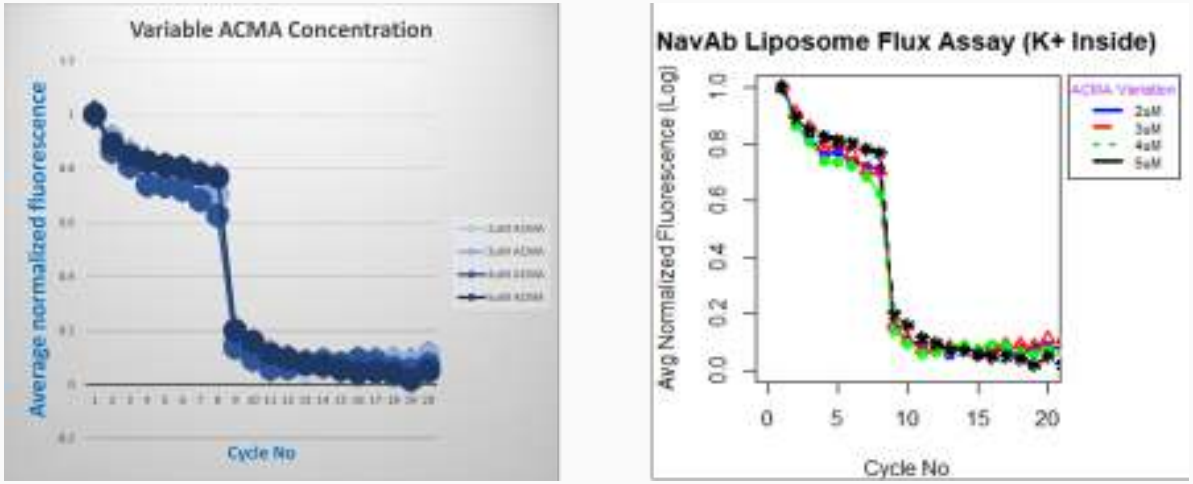


**Figure 7:** Fluorophore dosage is not a factor in its quenching, rather system properties (Ion conductivity etc.) determine quenching

# Noise vs Signal

# Fluorescence measured at 0.2 and 20 $\mu$M

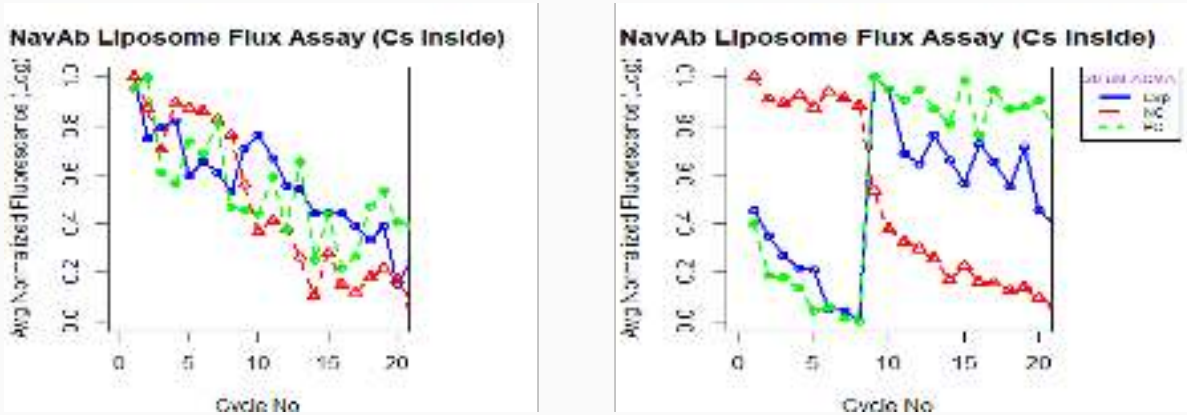


**Figure 8:** Legend: Noramlized fluorescence in R within the signal zone

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# References


[1] Zhenwi. Su. *Novel cell-free high-throughput screening method for pharmacological tools targeting K+ channels.* PNAS, 113(5744-5788), 2016.

[2] Joshua V. *A Single Molecule Study on The Structural Basis of Ion Selective Permeation in Voltage-Gated Sodium Channels.* , 2021.