Understanding transcription using yeast genetics

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Winston lab

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I am originally from Puerto Rico

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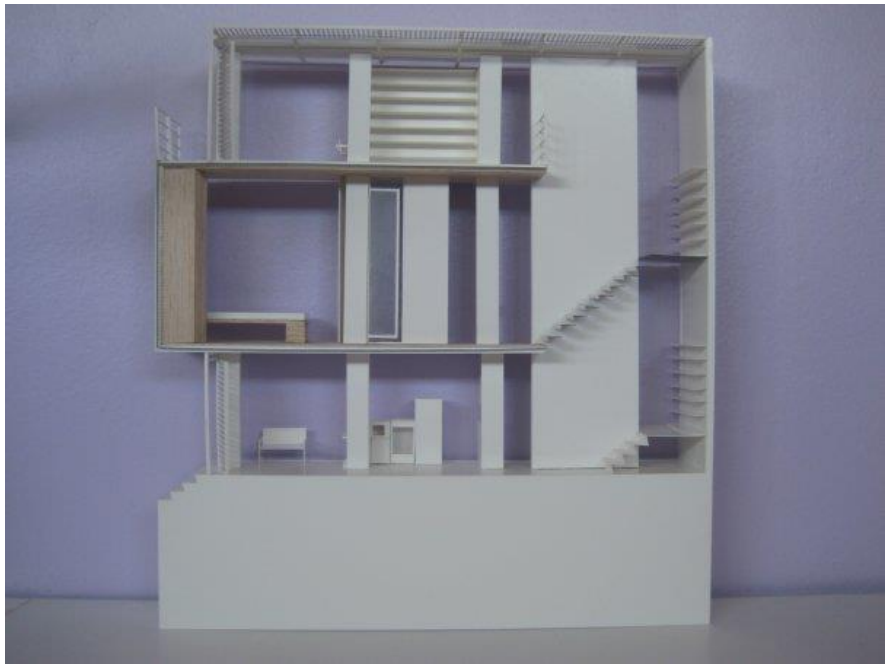
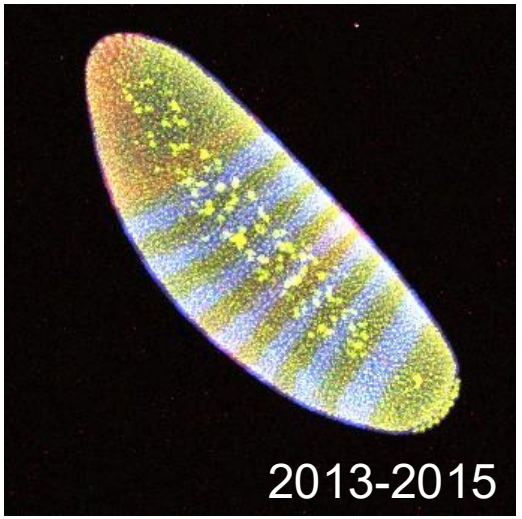
I studied architecture and biology at the University of Puerto Rico-Río Piedras

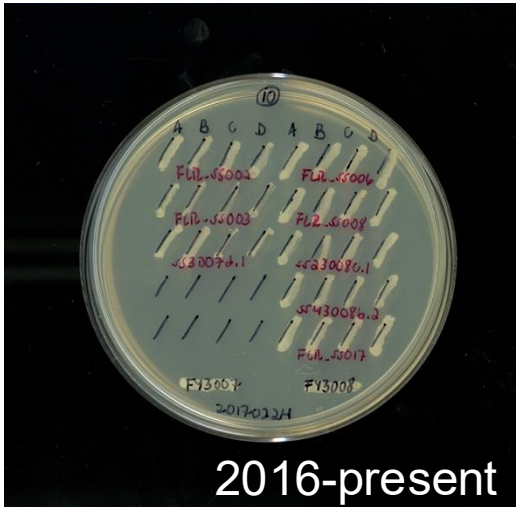


Different research opportunities motivated me to become a biology graduate student

2011-2012


2012


2013-2015


2016-present

In the Winston lab, we study transcription

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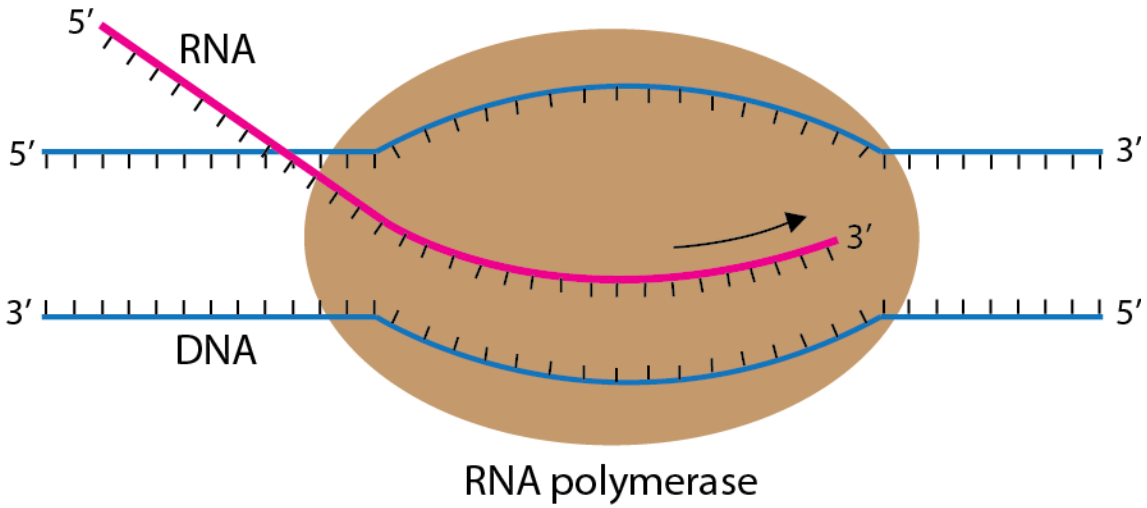
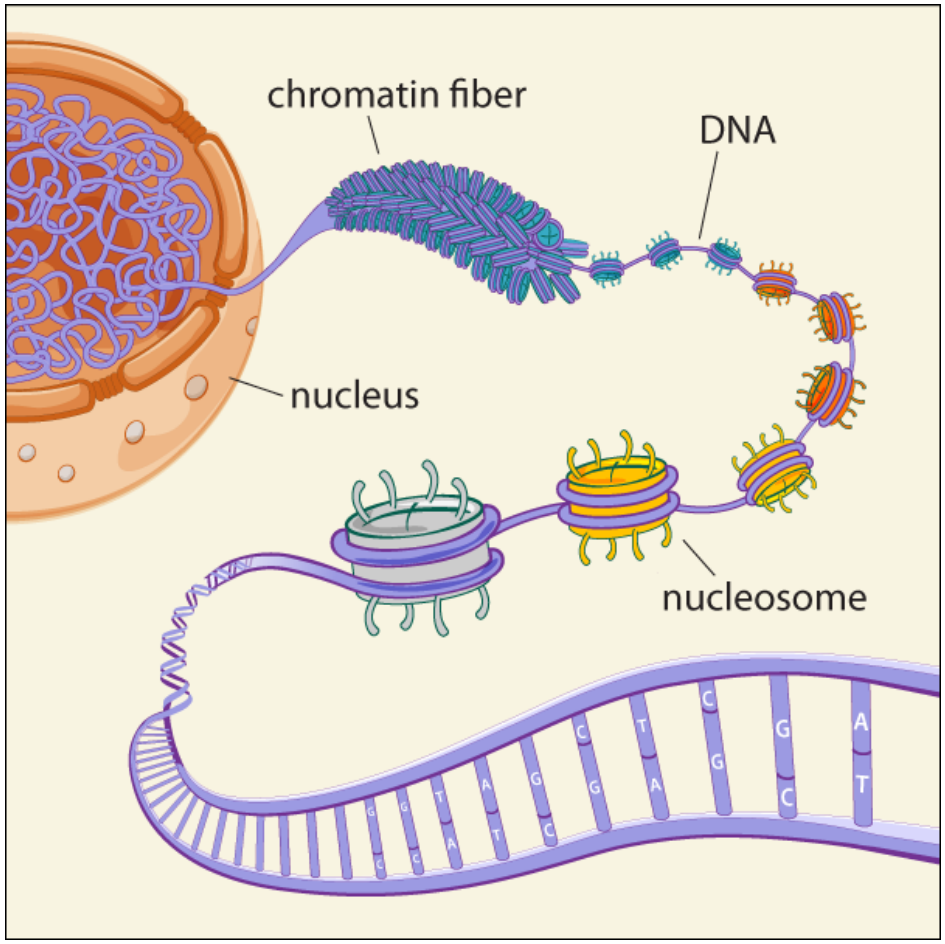
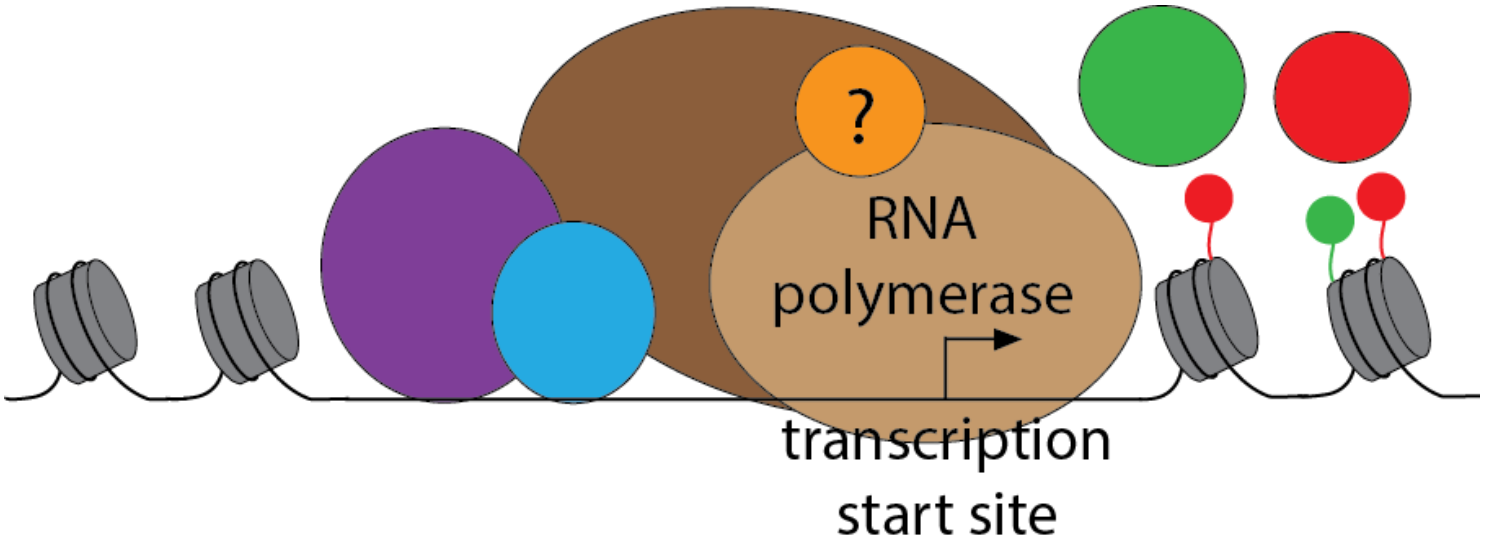


Transcription needs to get around compactly organized DNA

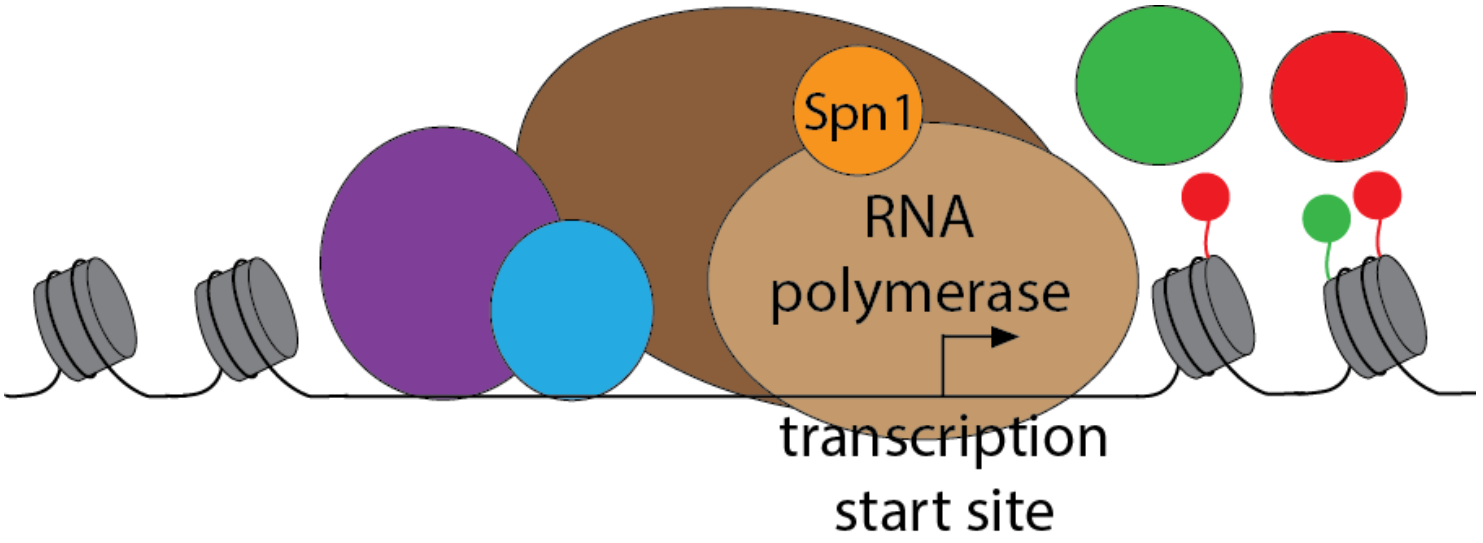


Graham Pardoe

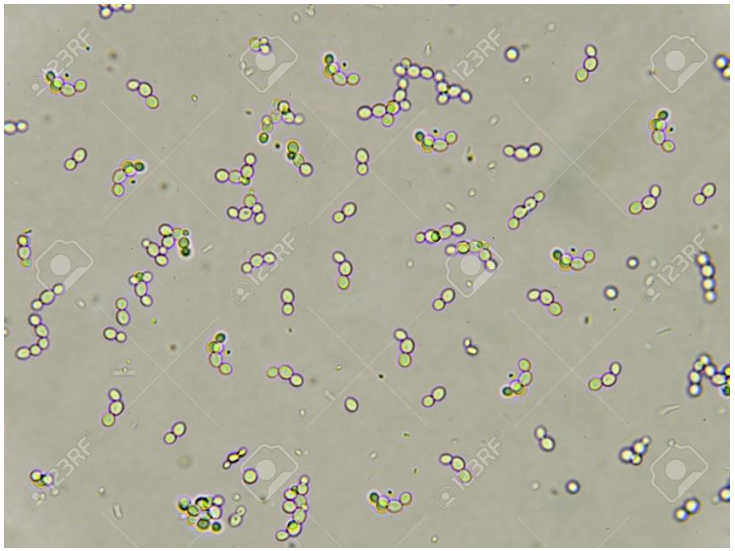
Transcription requires the participation of many proteins

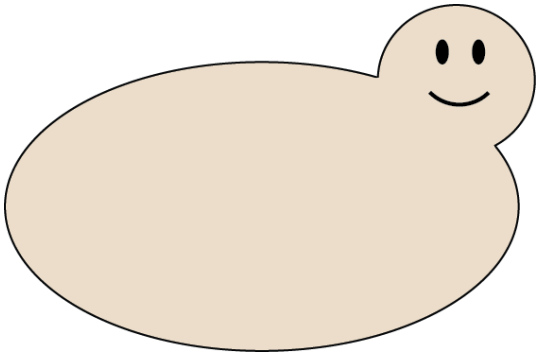


What is the function of Spn1 in transcription?



We will investigate the function of Spn1 in transcription using budding yeast





Yeast shares many features with humans and is easy to manipulate

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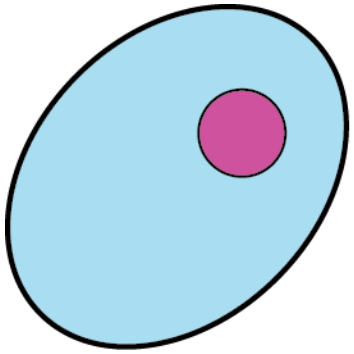
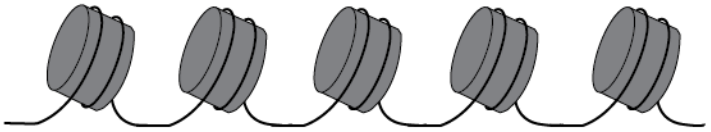


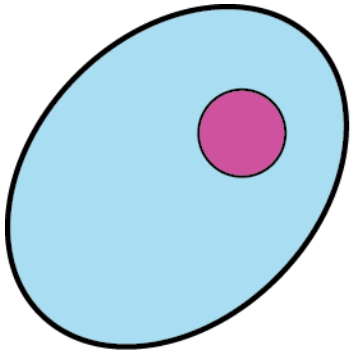
nucleus



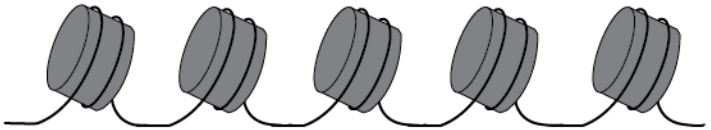
chromatin

proteins and processes

Yeast shares many features with humans and is easy to manipulate



nucleus

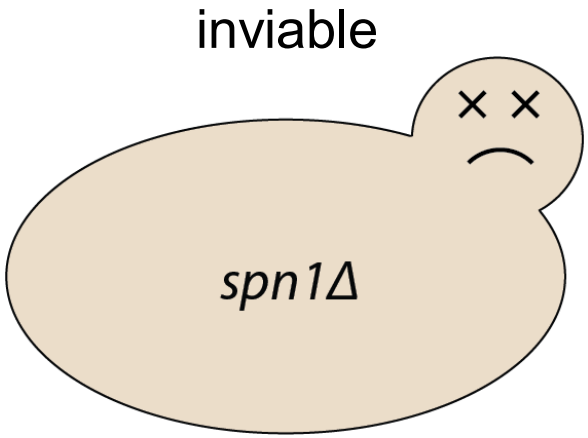


chromatin

proteins and processes

Advantages of studying yeast:
-fast growth
-easy to manipulate
-wealth of genetic tools

Yeast cells that lack Spn1 are inviable



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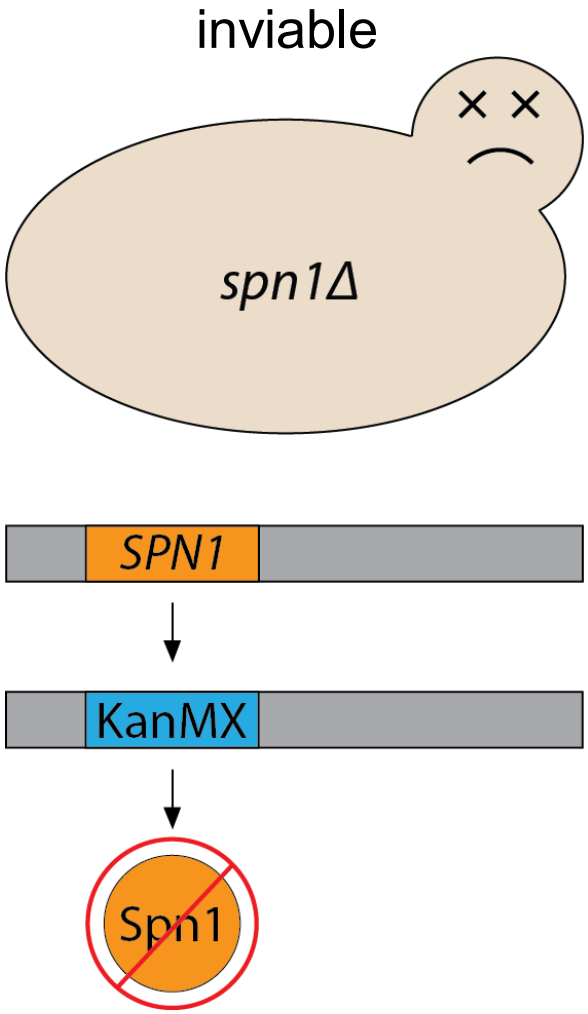
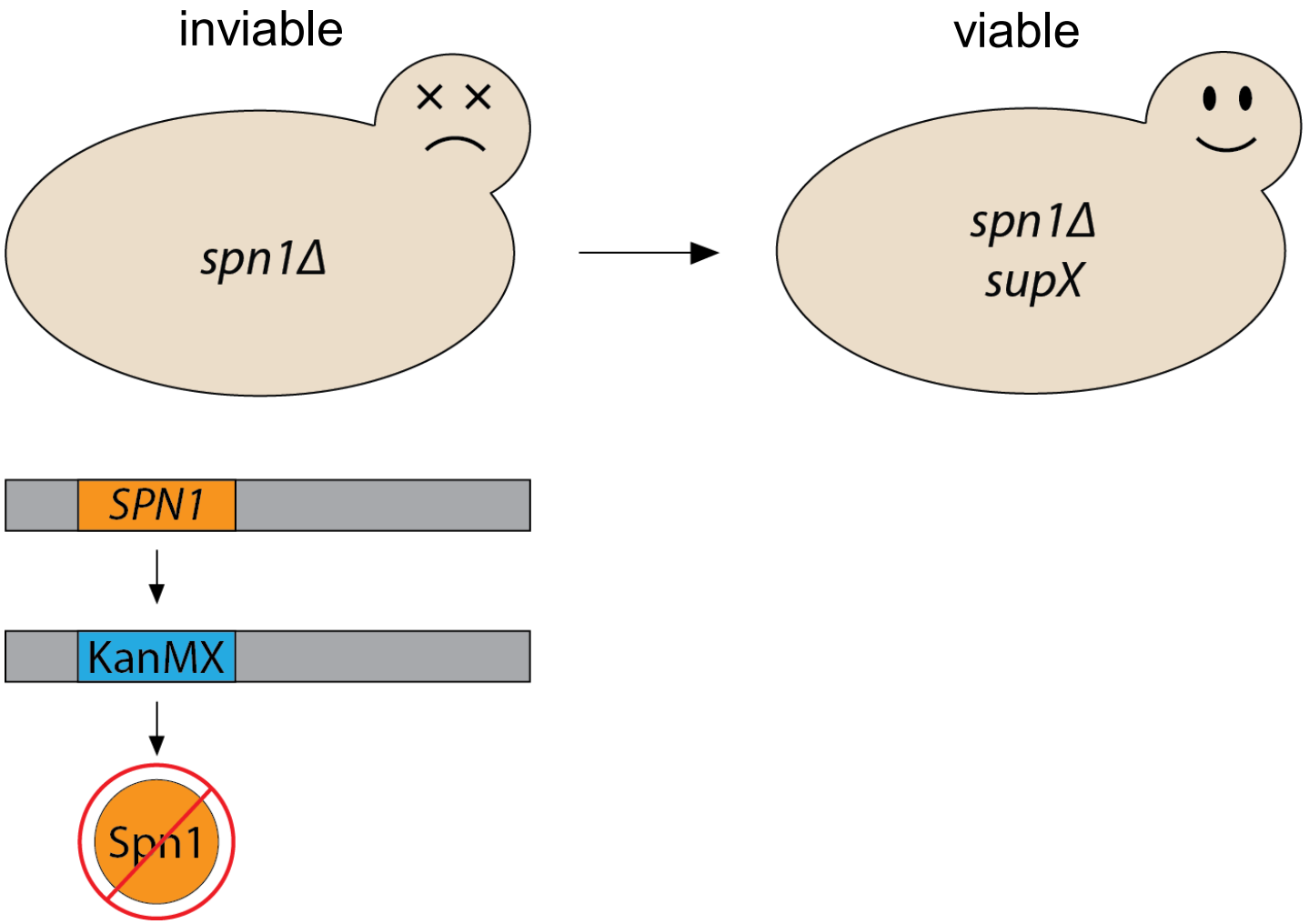


We will look for cells that are viable in absence of Spn1



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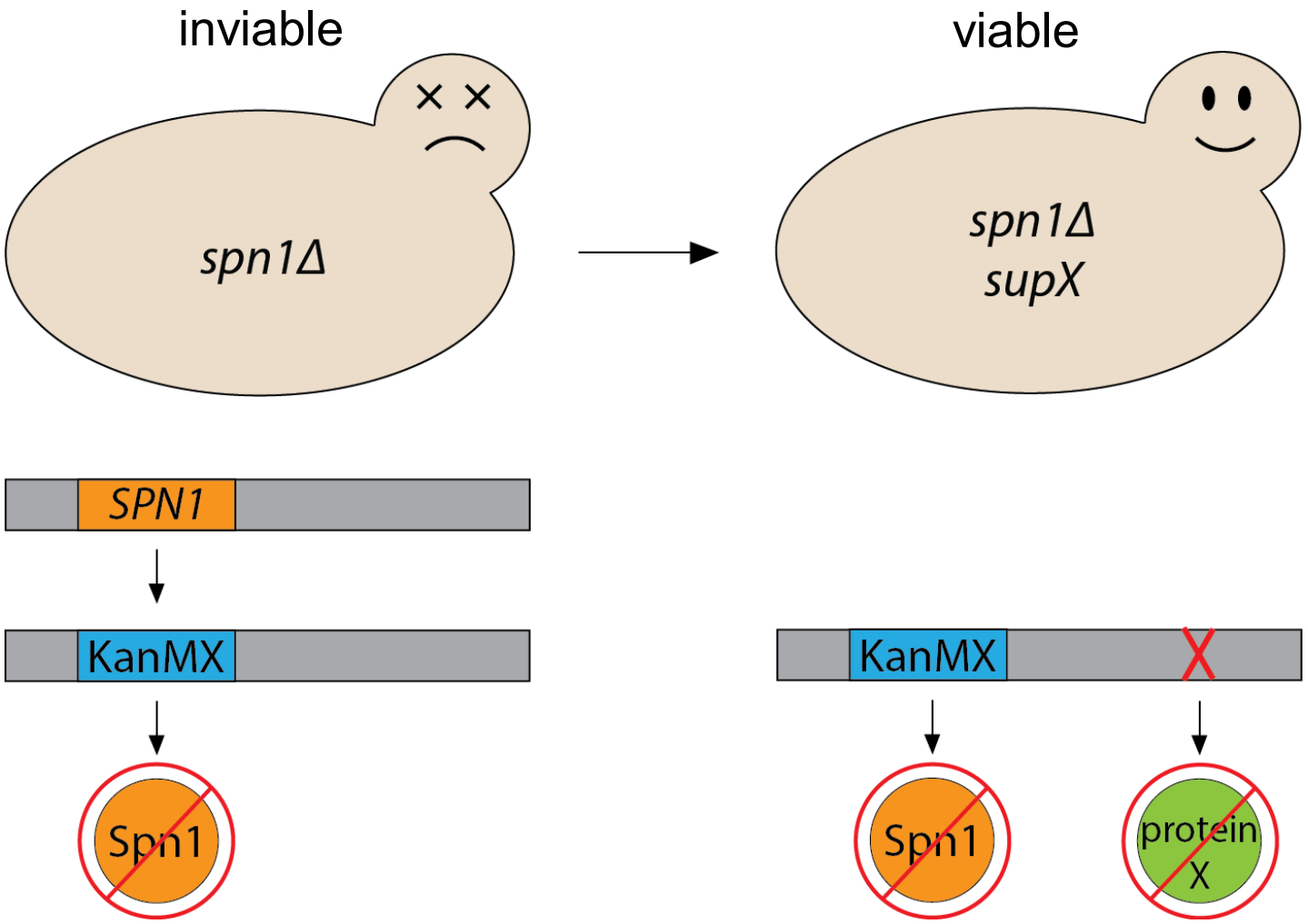
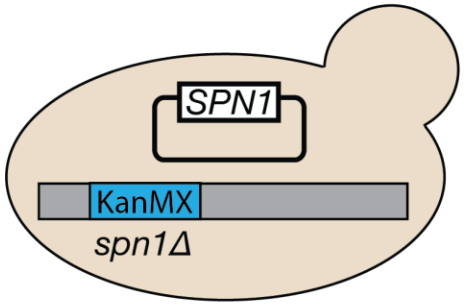
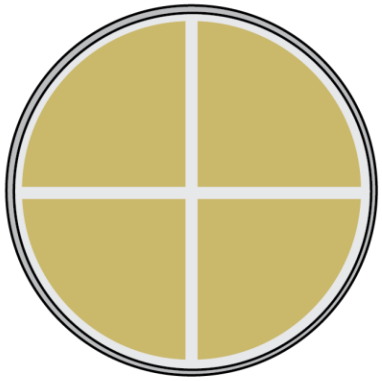
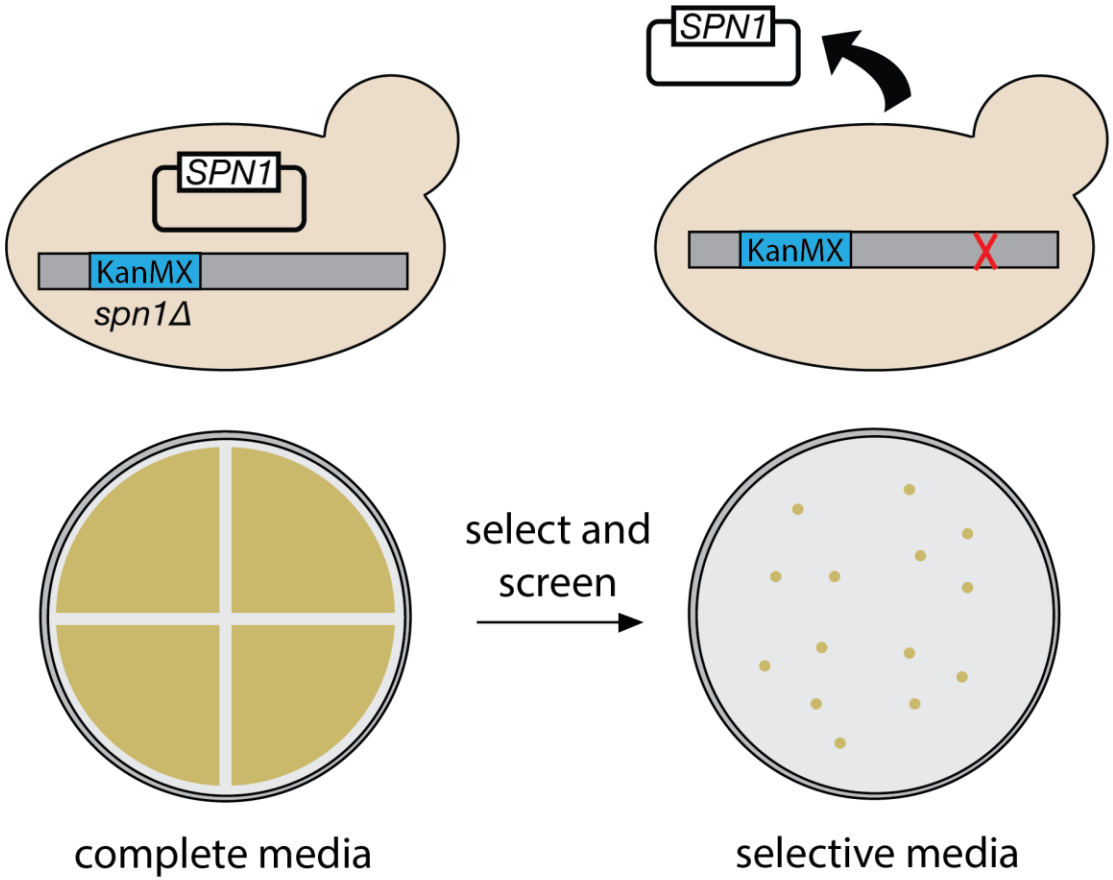


We will use yeast genetics to identify *spn1Δ* suppressor mutations





complete media


SPN1
KanMX
spn1Δ
SPN1
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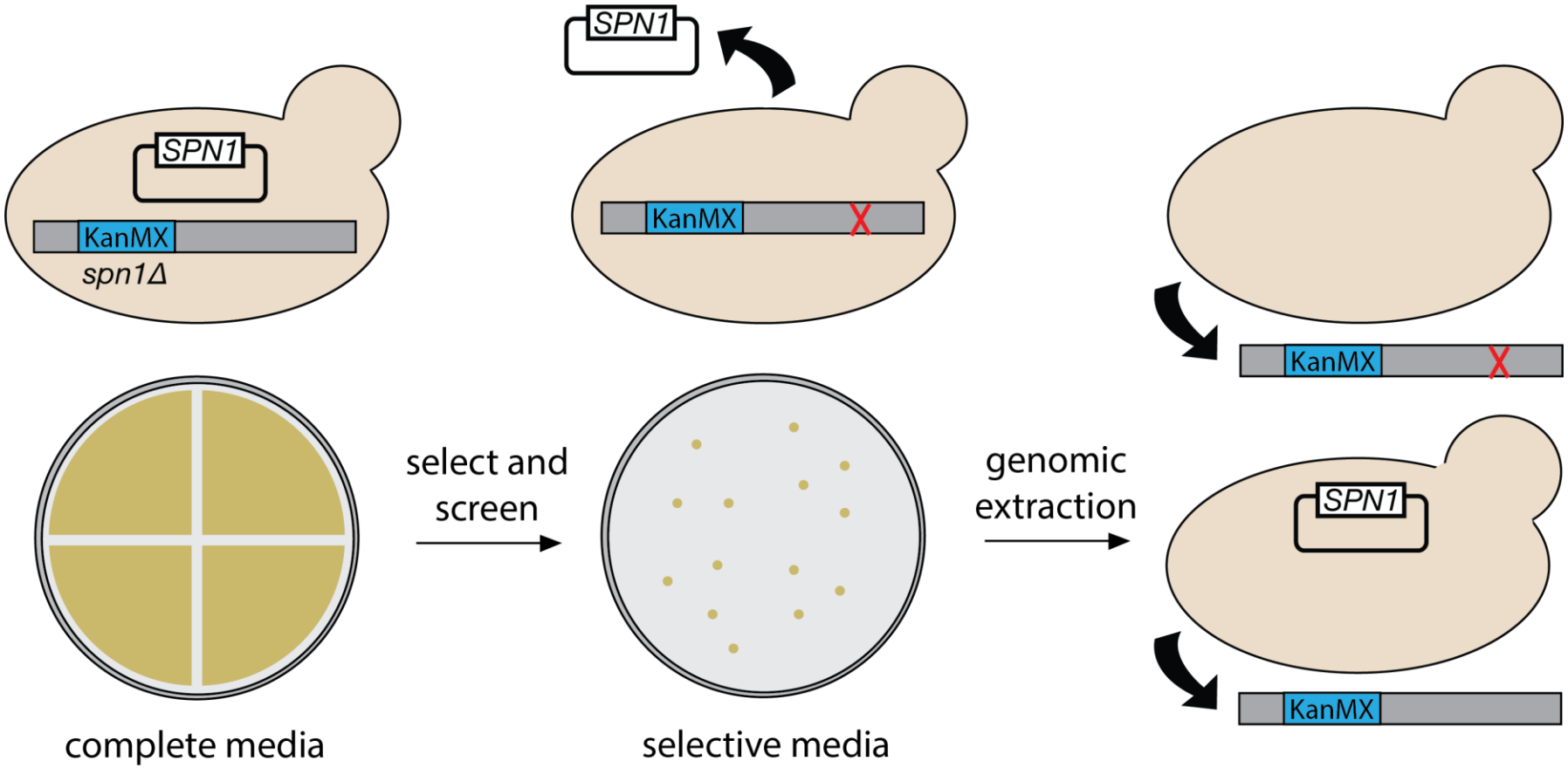
select and
screen
complete media
selective media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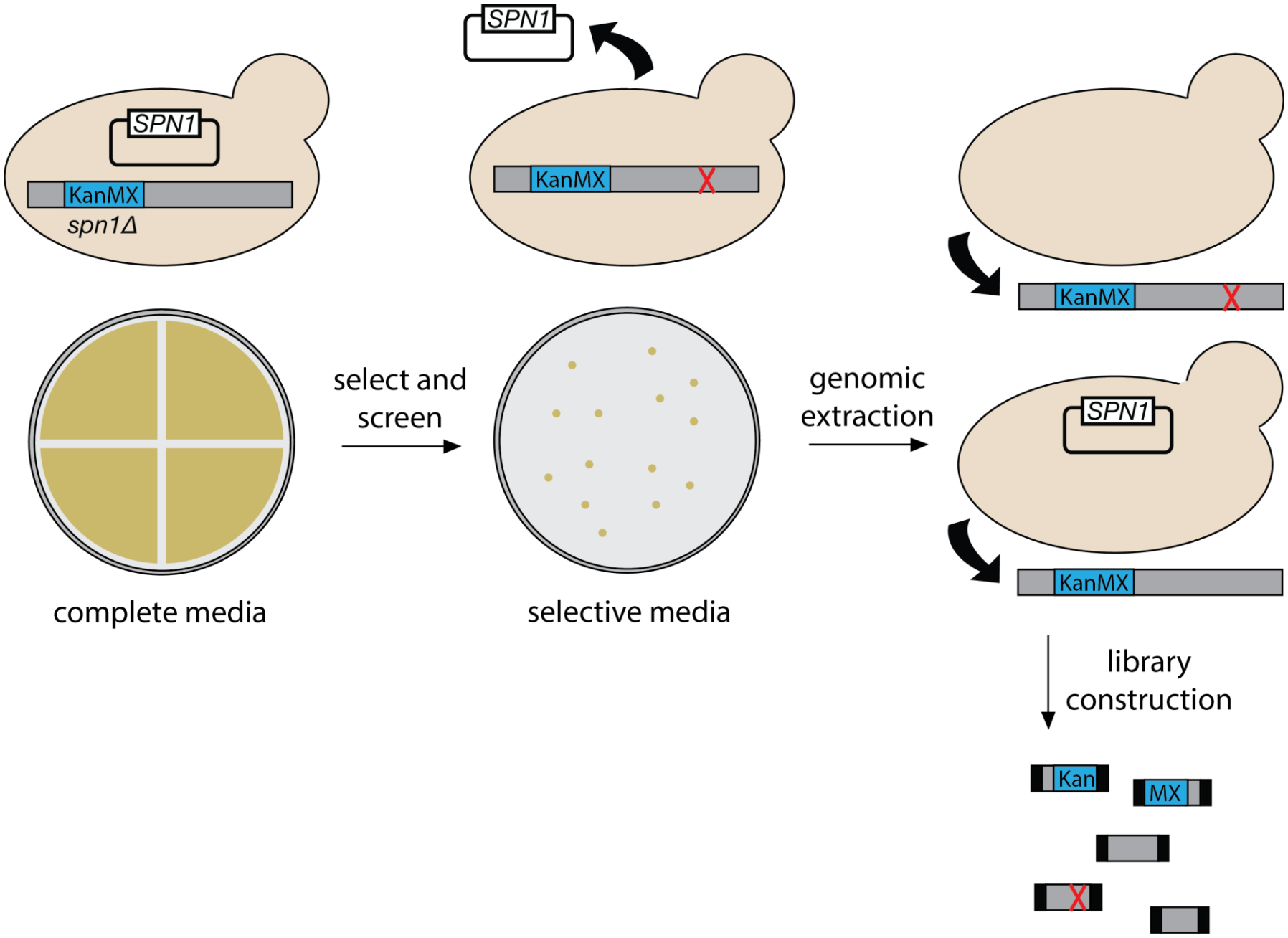
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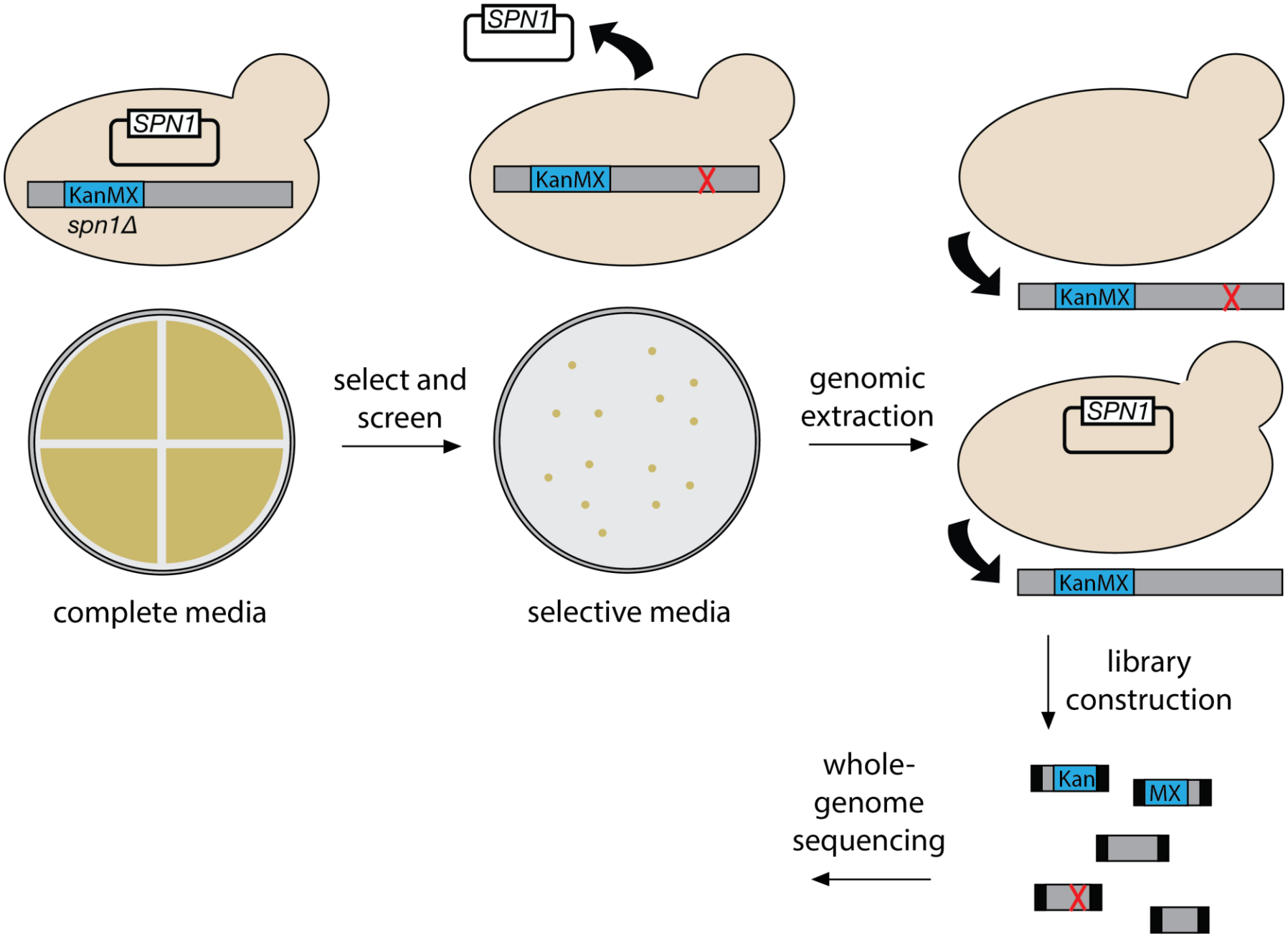
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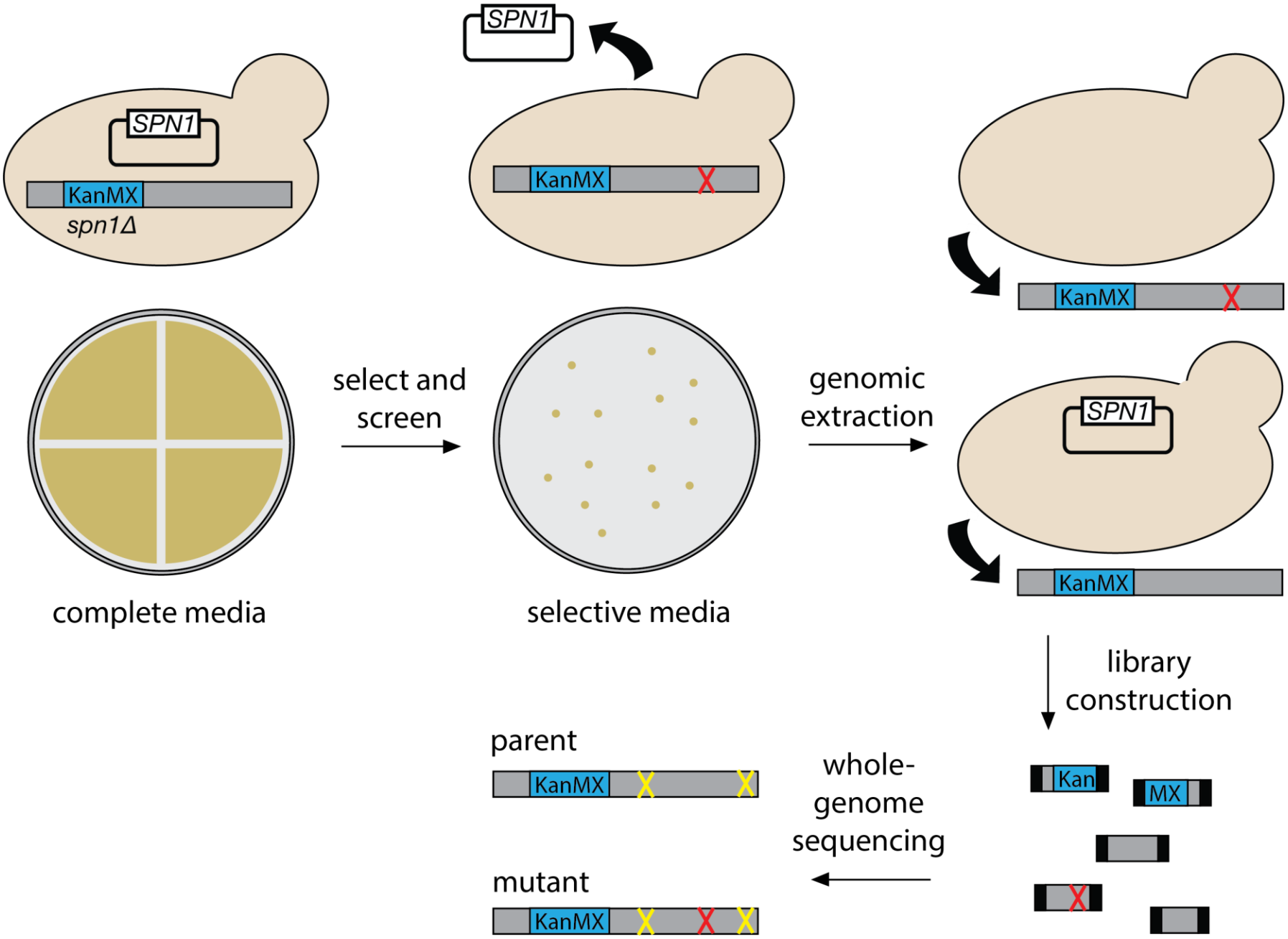
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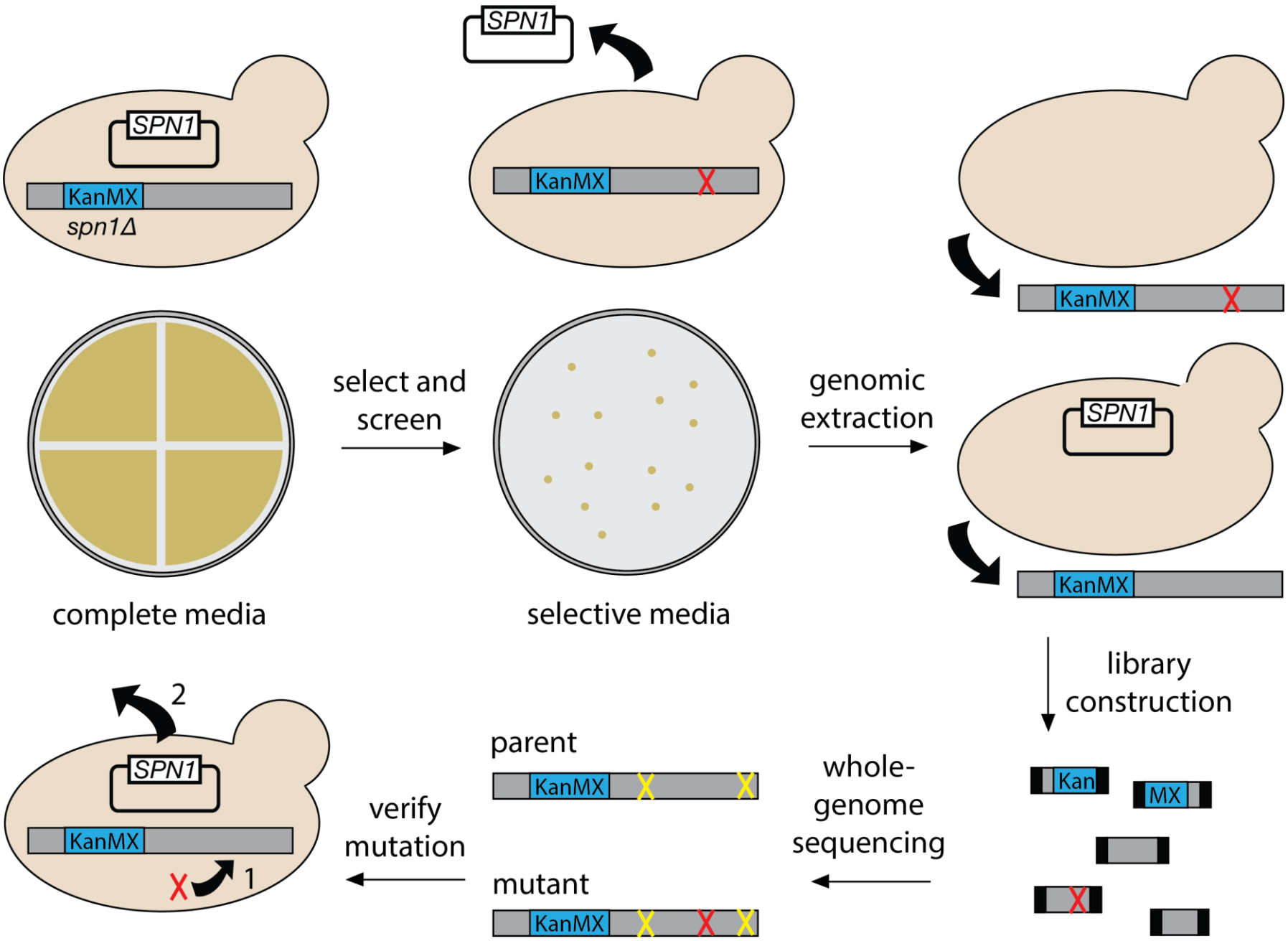
parent
KanMX
whole-genome sequencing
mutant
KanMX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complete media
selective media
library construction
Kan
MX
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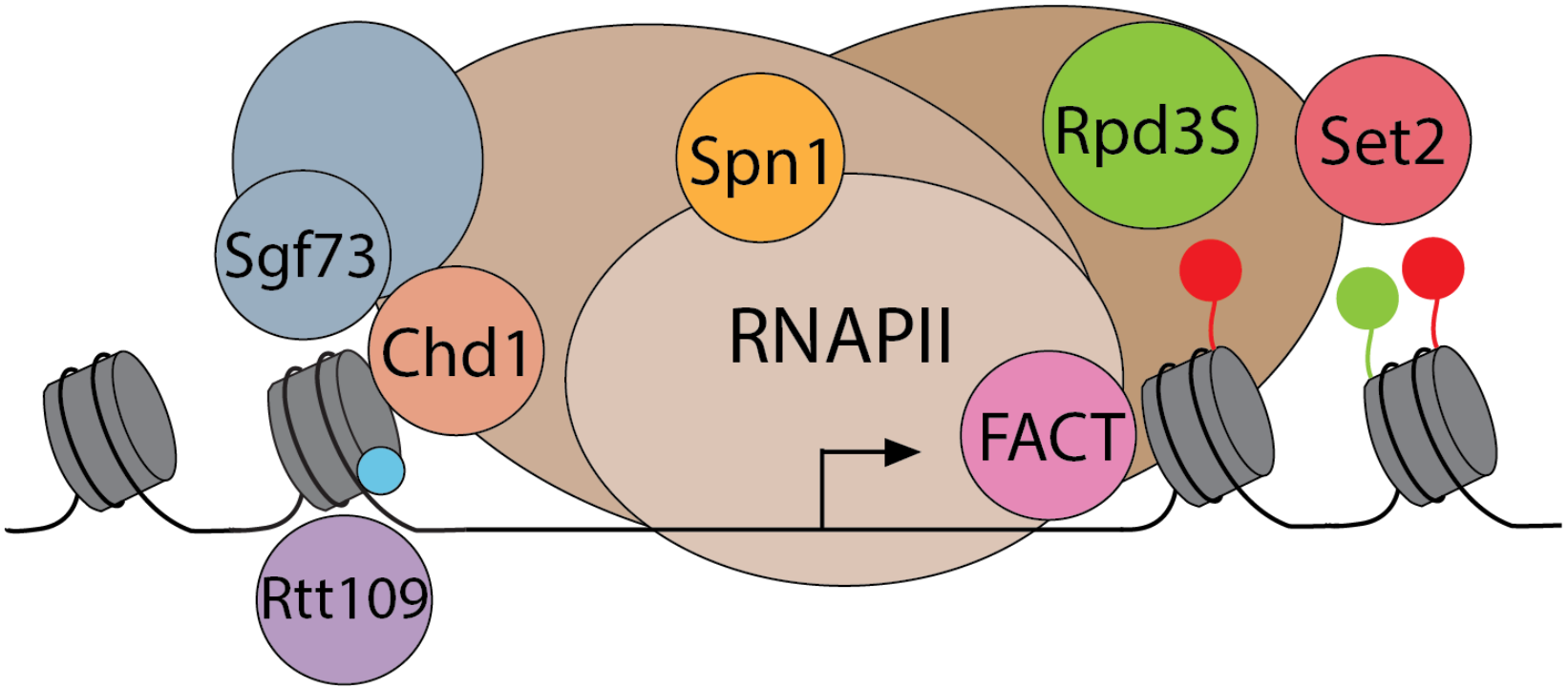
parent
KanMX
mutant
KanMX
verify mutation
2
SPN1
KanMX
1

We identified mutations in protein complexes that modify chromatin



Dan Spatt and Fred Winston

Thank you!