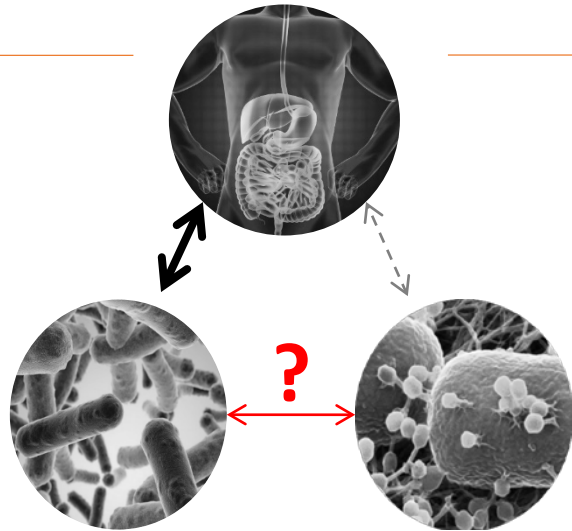


Sharp contrast between temperate and virulent coliphages infectivity in the infant gut microbiota.

Aurélie MATHIEU



- The gut microbiota (GM) has profound influence on human health and disease
- Bacteriophages are an important component of the GM which could play important roles in shaping the GM.

BUT :

Which phages infect which bacterial species ?
What are the phage-bacteria interactions in the gut ?

The Cohort

700 infants

Fecal samples collected at :

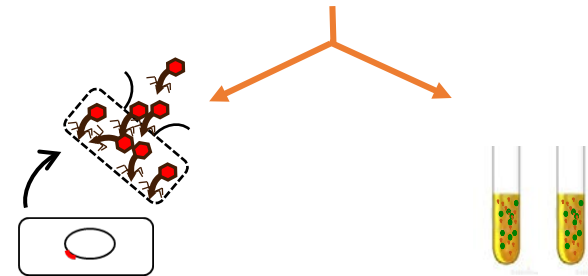
1-week

1-month

1-year



Culturomic approaches
for coliphages and *E.coli* strains



Coliphages produced
by *E.coli* strains

Coliphages
in viromes

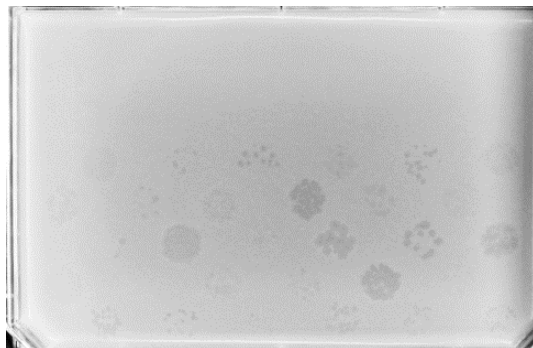
For temperate coliphages produced by **natural *E.coli* strains** :

1- What is the number of natural *E.coli* strains producing temperate phages ?

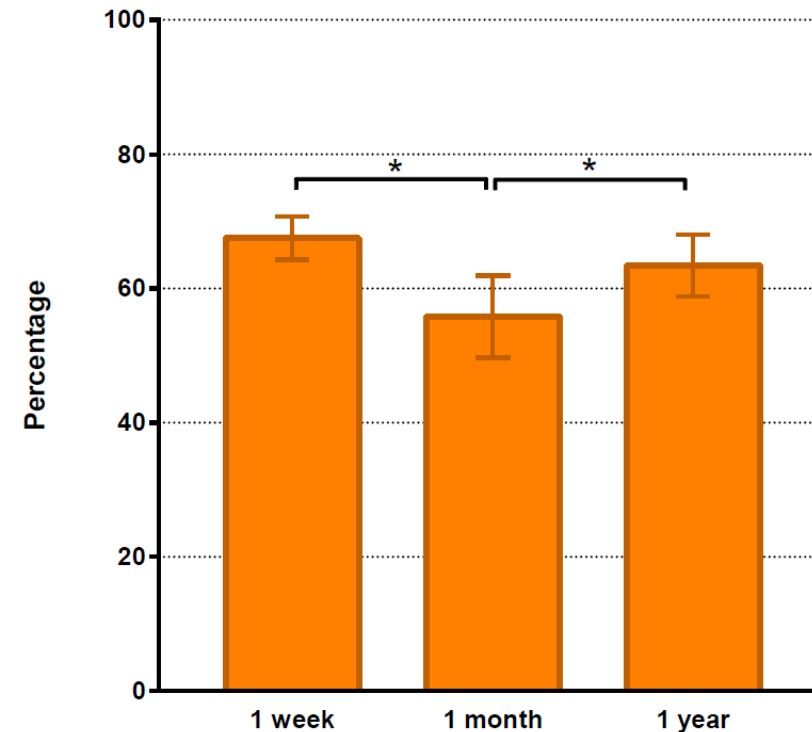
The Cohort : 700 infants

Fecal samples collected at	Number of <i>E.coli</i> strains isolated
1-week	348
1-month	466
1-year	955

Identification of strains producing active coliphages



Natural *E.coli* strains producing phages

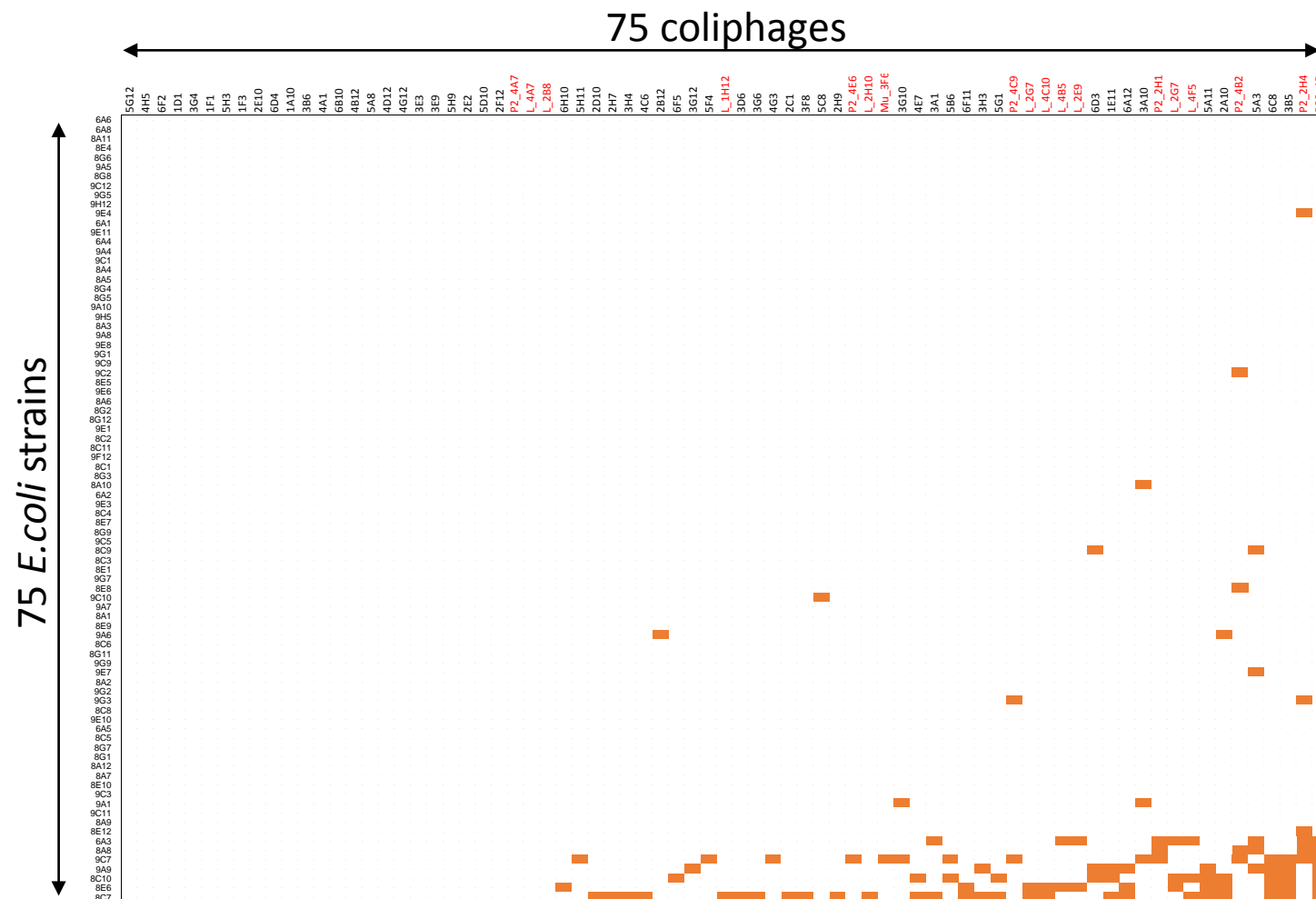
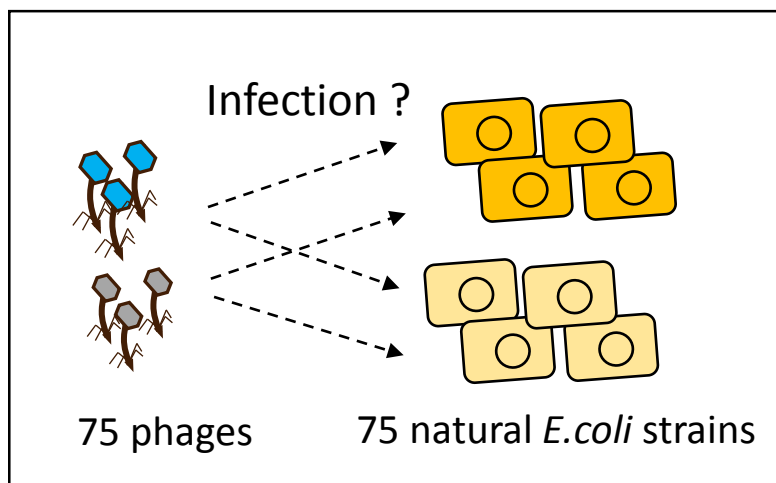


- 62.2% of natural *E.coli* strains contain active temperate phages !
(in LB medium, in absence of any external stress and by using 2 indicator strains)

For temperate coliphages produced by **natural *E.coli* strains** :

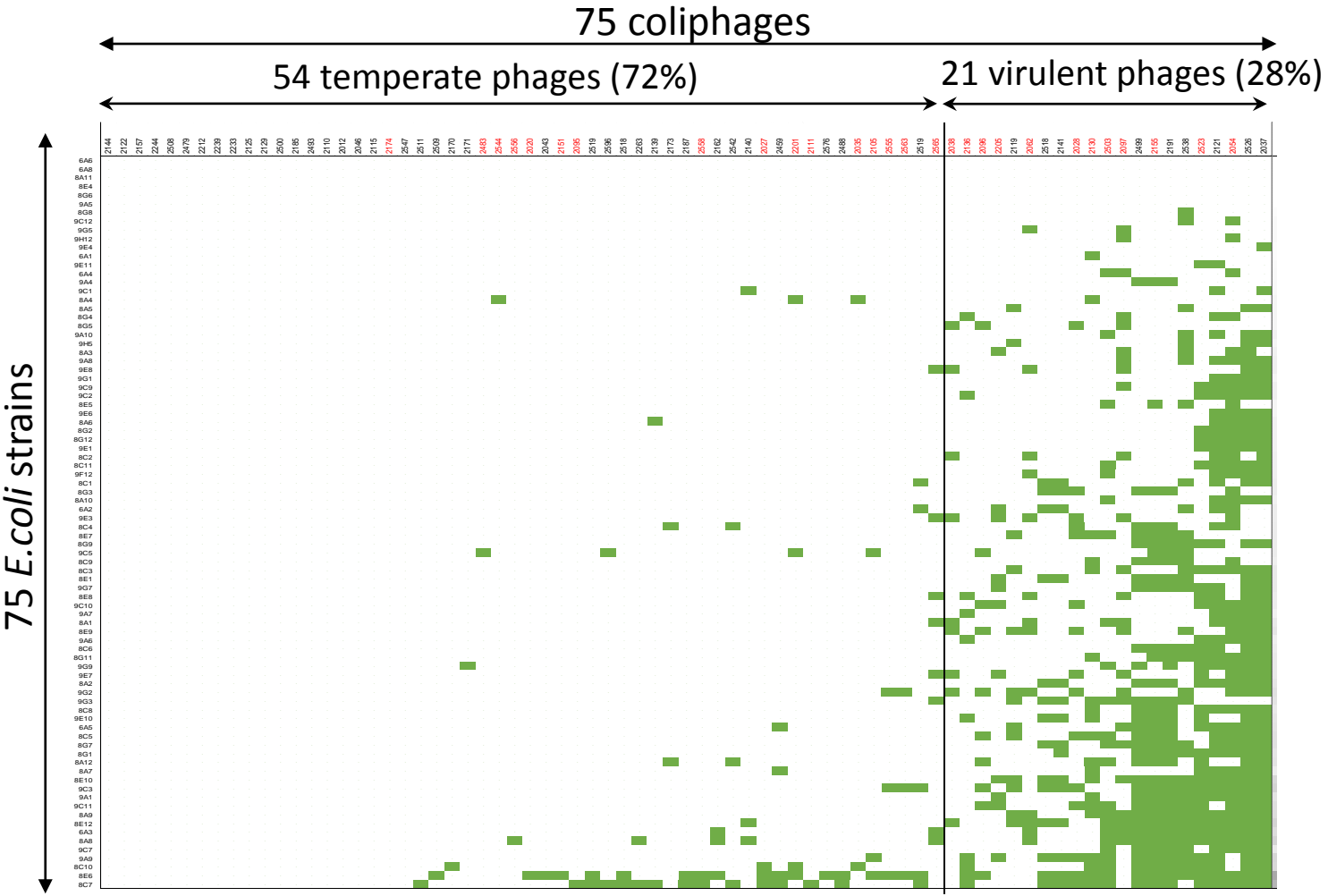
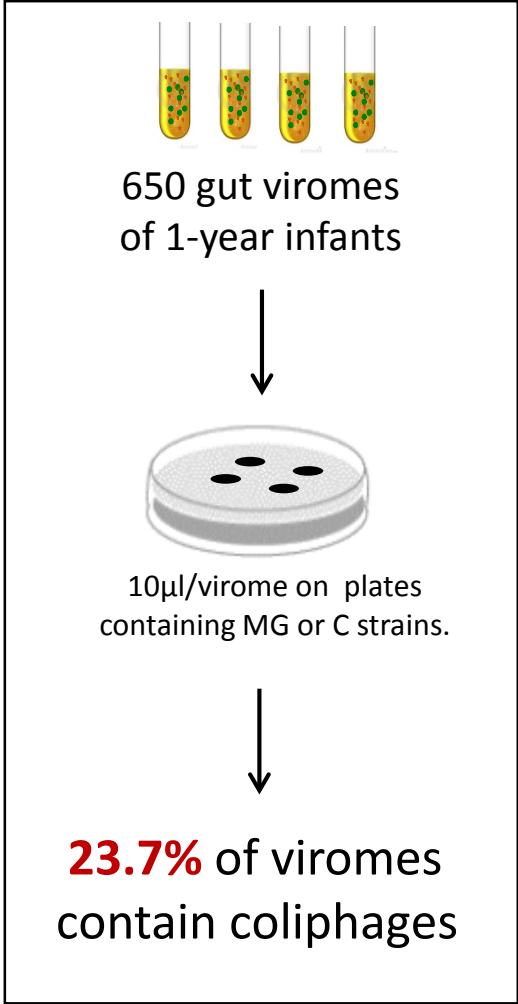
2-What is the temperate phages impact on natural *E.coli* strains ?

At 1-year :



Temperate phages have a low infectivity level on natural *E.coli* strains.

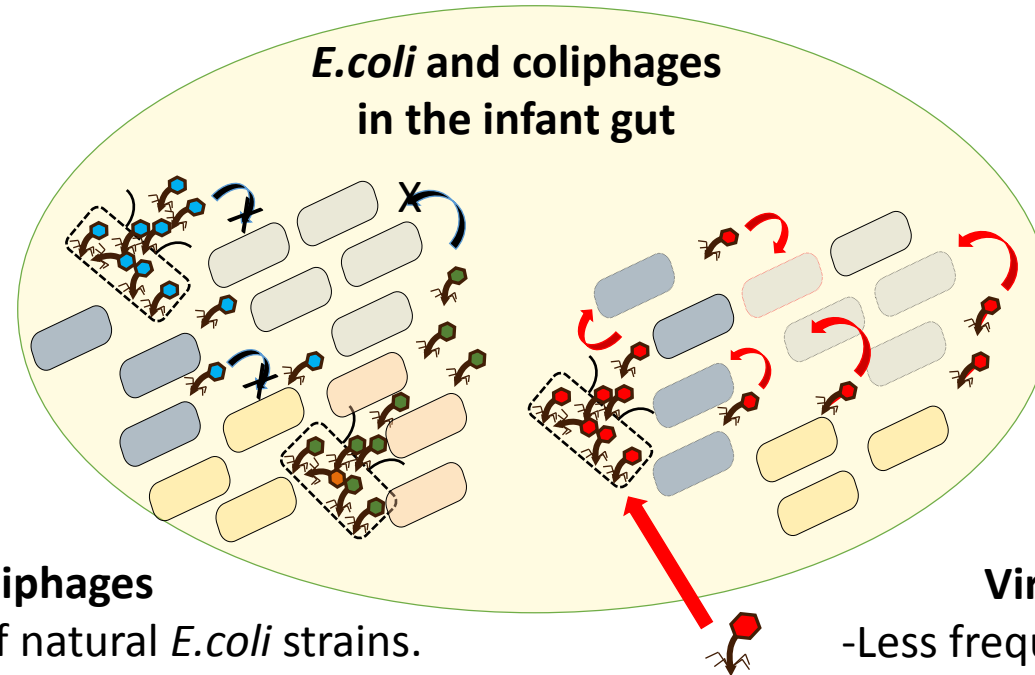
Gut viromes contain both: temperate and virulent coliphages



- Temperate phages have little effect on natural *E. coli* strains.
- Virulent phages are the most infectious phages. They infect 10 to 68% of natural *E. coli* strains.

Conclusions

Very different behavior of temperate and virulent gut coliphages:



Temperate coliphages

- Produced by at least 60% of natural *E.coli* strains.
- Phages the most abundant in viromes
- Mostly uninfecious on *E.coli* population

Virulent coliphages

- Less frequent in gut viromes than temperate coliphages
- But very infectious on *E.coli* population

POSTER :

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INRA - JOUY EN JOSAS



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in the infant gut microbiota**

Aurélie MATHIEU

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COPENHAGEN PROSPECTIVE STUDIES
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