

Development of Water-Soluble Functionalized Oligomers with Controlled Bleach Releasing Properties for Long-Term Antiviral Applications



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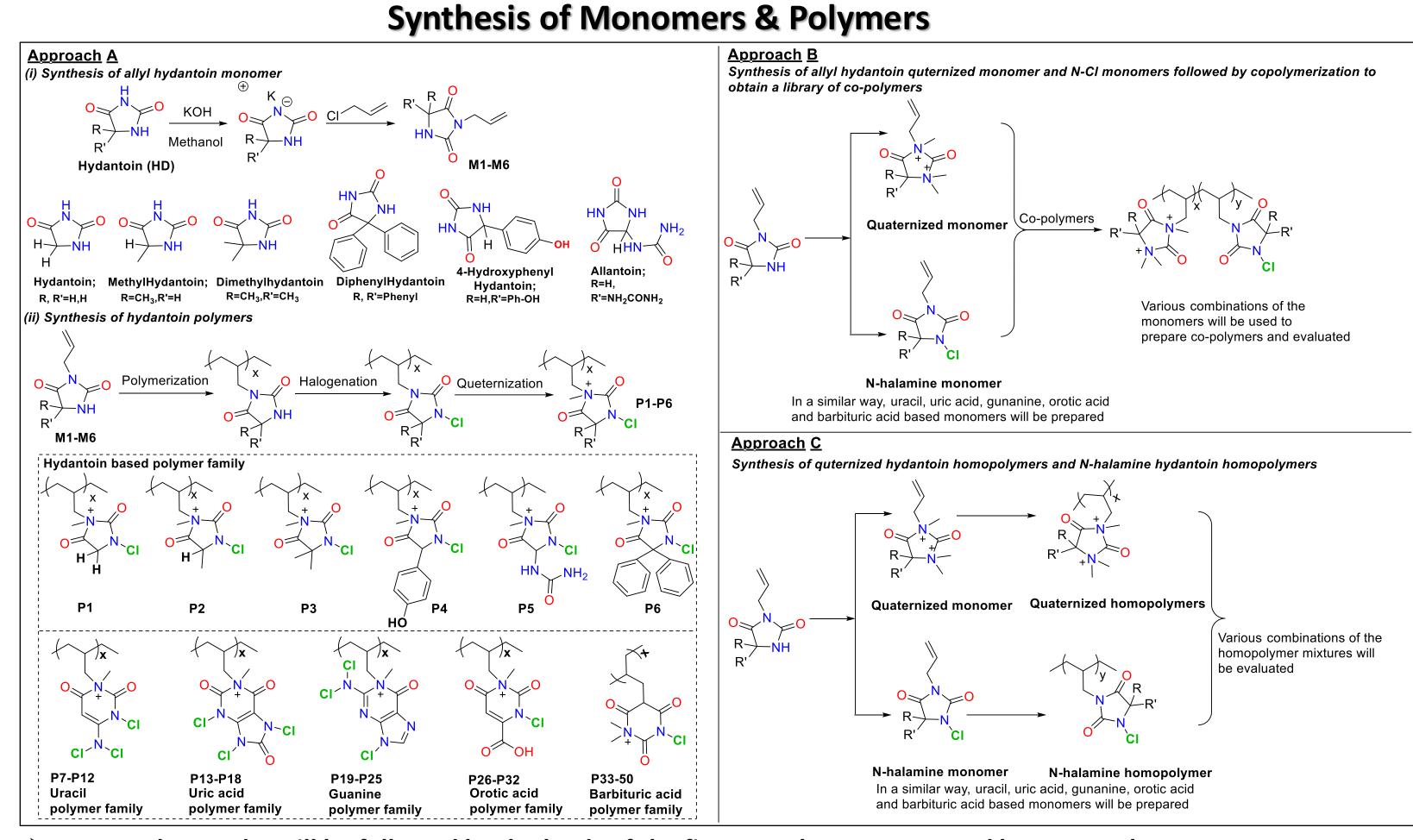
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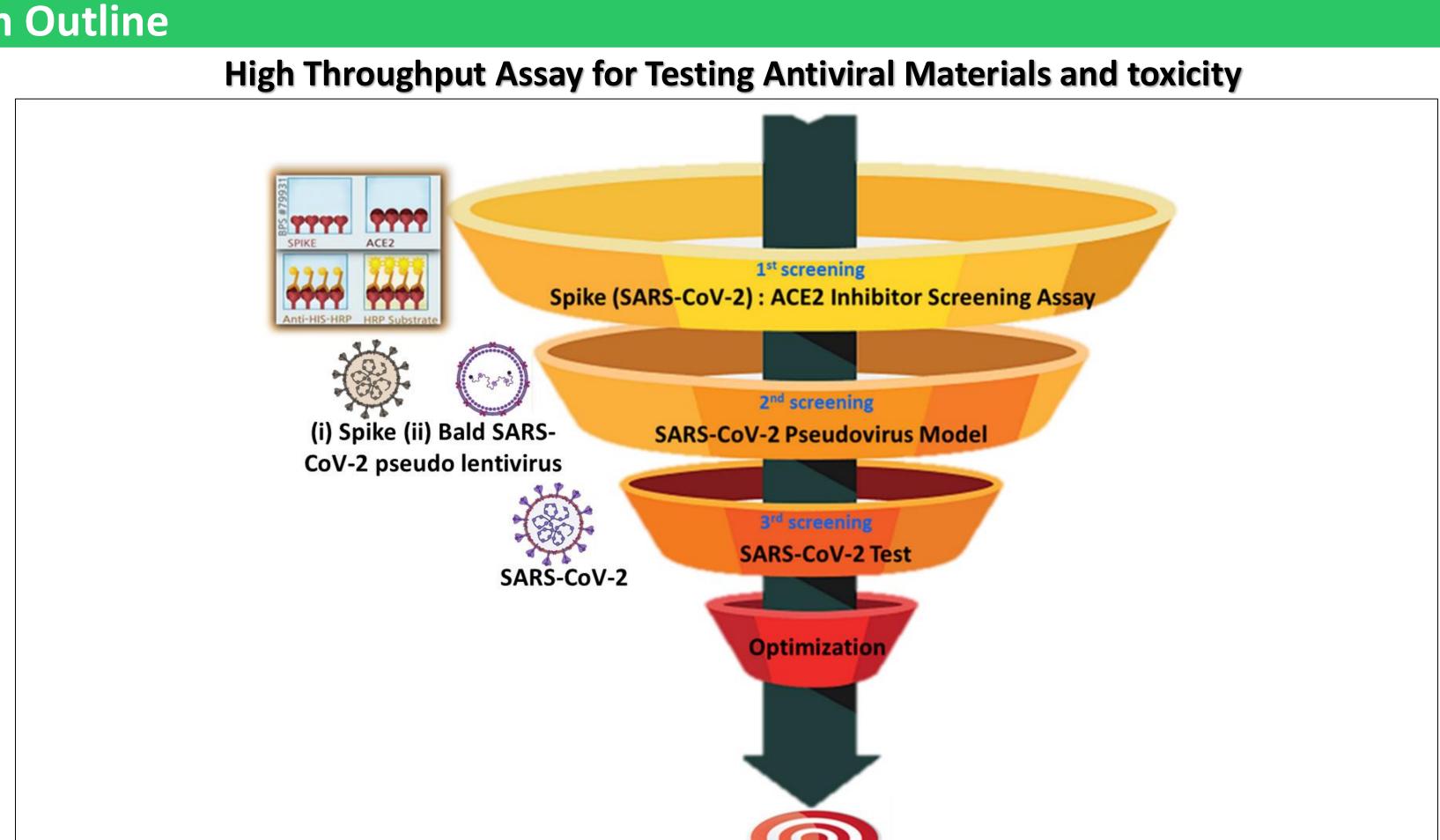
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Introduction & Objectives Disinfection - Bleach Current Status Cases worldwide: 788 million Deaths worldwide: 7,006,256 **SARS-CoV** 2020 2021 Coated surface

Research Outline





■ 0.01 mg/ml ■ 0.1 mg/ml ■ 0.2 mg/ml

> Approach B and C will be followed by the leads of the first 50 polymers prepared by Approach A

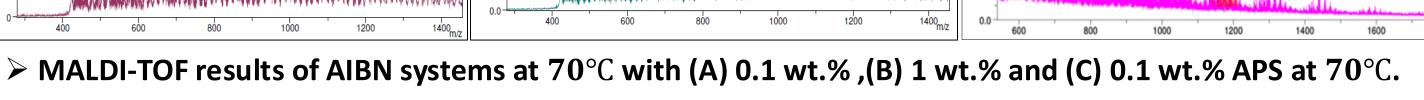
Results & Discussion

Cell

Safety and toxicity

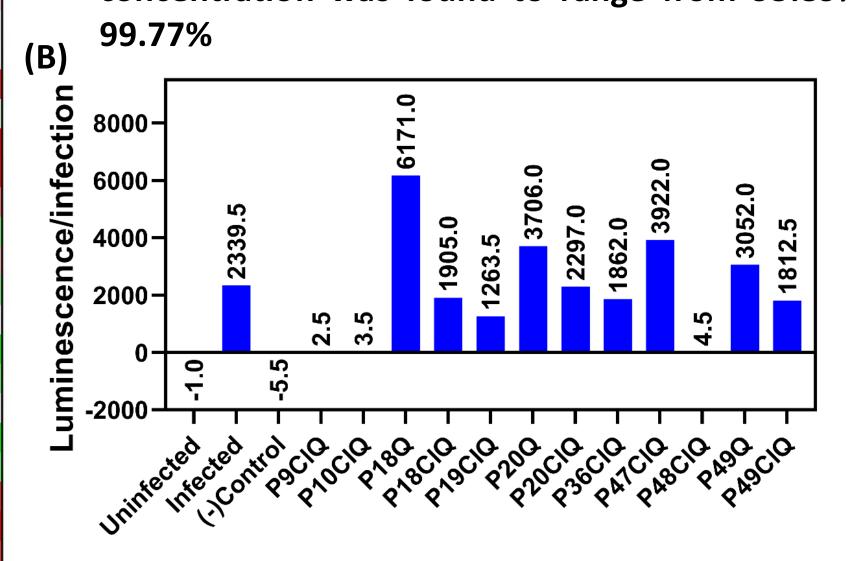
0.02 mg/ml 0.1 mg/ml 0.2 mg/ml

Polymer's molecular weight conformation (C)

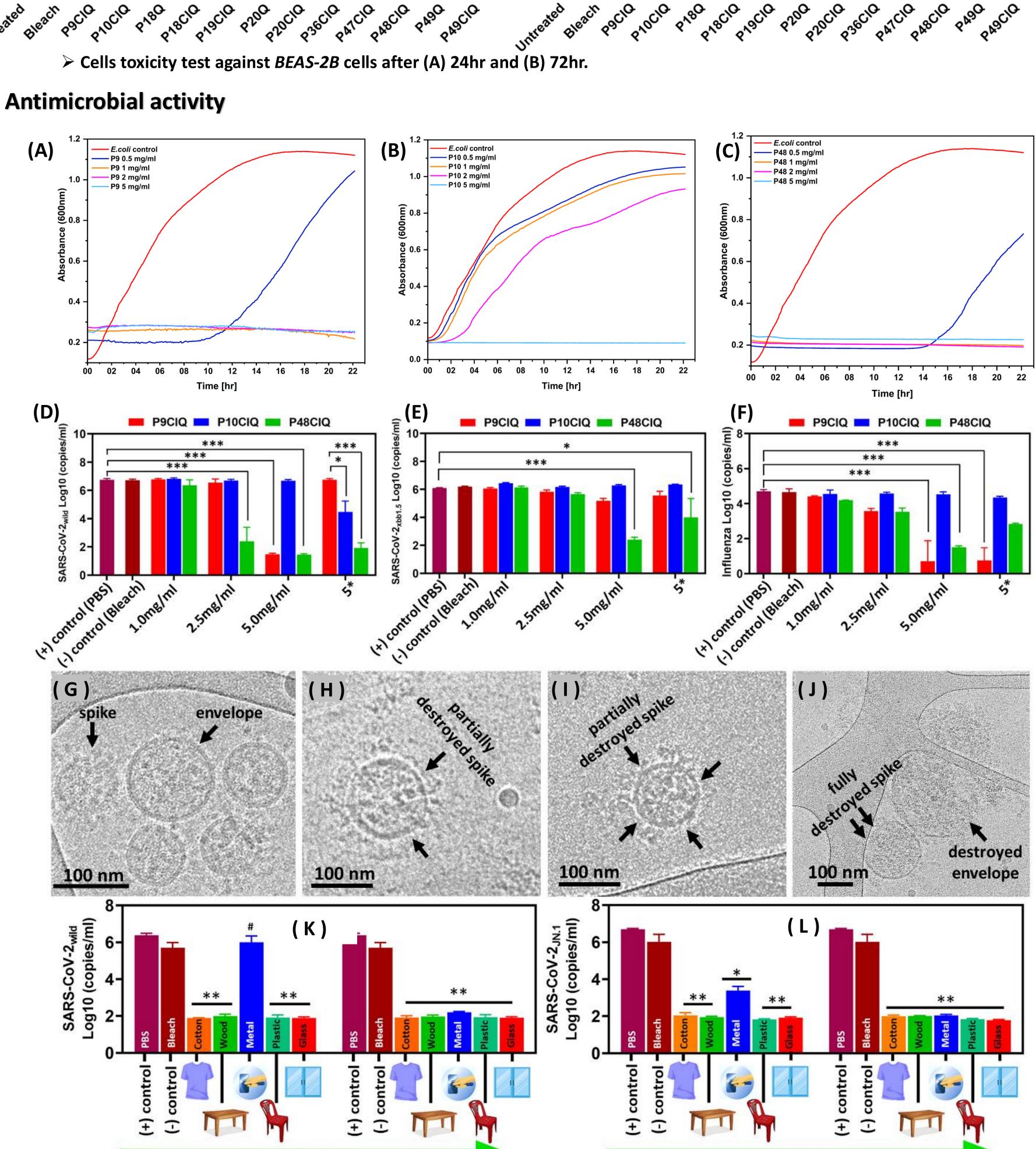


Screening and activity testing at different levels **Polymer modification** Approach A Approach B (A) **PCIQ** PCI-PQ PCI PCIQ PQ 40.23 64.38 27.78 35.83 32.12 82.53 51.98 5 11.77 26.65 26.48 13.44 Approach A Approach C 21.55 35.54 PCI+PQ 97.31 17.90 PCIQ PQ mixture 6.46 99.49 99.49 0.00 85.49 20% 67.30 32.12 13 53.73 40.60 52.38 14 99.76 96.65 15 17.49 39.91 16

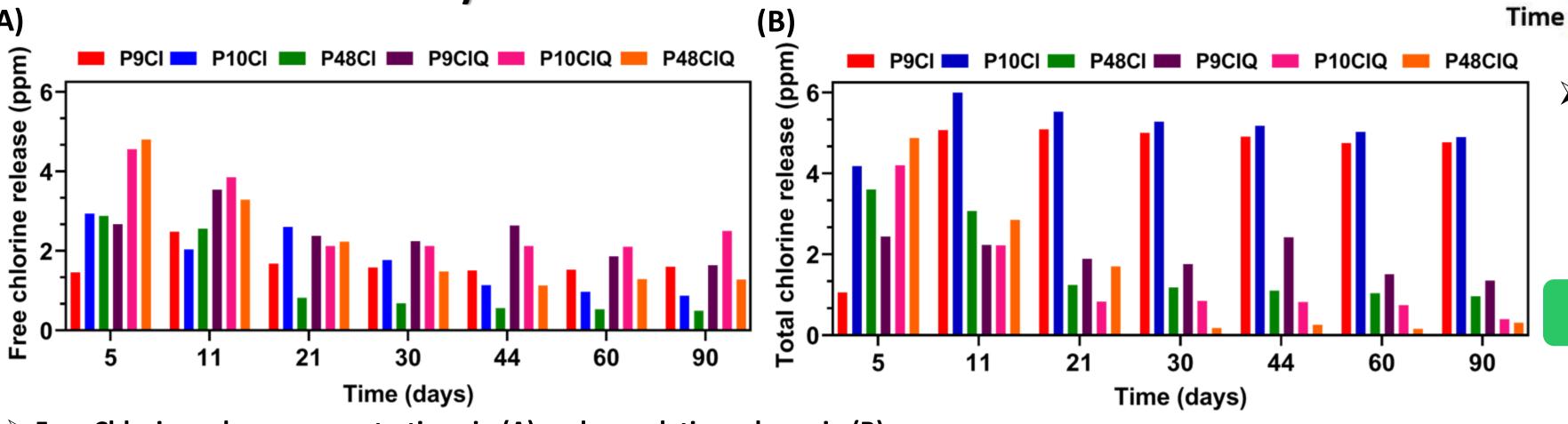
- ➤ Concentration of the polymer: 0.05 mg/ml (0.05% w/v)
- √ 12 lead candidates with activity > 99% were found while the bleach at the same tested concentration was found to range from 95.89%-99.77%



> (A) Heatmap of the sample's Anti-SARS-CoV-2's spikes activity against SARS-CoV-2's spikes specifically the impact on the binding of the spike receptor binding domain (RBD) and the angiotensin converting enzyme 2 (ACE2) organized by polymer number (1-50) and functionalization per Approach A. (B) Spike (SAR-CoV-2) pseudotyped Lentivirus test.



Free chlorine release study (A)



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surface activity of P48 on different surfaces for 1 and 2 weeks.

14 days



7 days

Time

> Antimicrobial activity figure. (A,B,C) present antimicrobial activity of P9,P10 and P48 against *E.coli*

bacteria. (D,E,F) present antiviral activity each for P9,P10 and P48 against covid-19 wild type,

omicron and sessional influenza, respectively. (G,H,I,J) present cryo-tem images of covid-19 wild

type virus and incubated with P48 for 0.5,1 and 4 hours accordingly. (K,L) present stability and

הקרן הלאומית למדע

14 days

> Free Chlorine release concentrations in (A) and cumulative release in (B).

14.17

99.77

95.19

99.53

48.59

8.44

16.35

24.89

90.93

57.48

13.21

44.14

65.16

87.61

91.22

6.68

94.37

84.88

71.67

4.98

0.00

0.61

51.98

99.65

81.34

32.12

28.71

25.70

17.80

12.47

28.62

26.48

59.08

99.84

99.84

39.88

55.00

51.19

58.02

23.45

76.42

35.35

49.60

78.21

45.68

62.55

54.82

13.97

99.13

99.83

99.76

17

19

20

22

23

24

25

26

27

28

29

30

31

32

33

34

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37

38

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43

44

45

47

48

49

28.06

26.81

45.06

87.54

15.78

23.66

24.79

we thank them for that.

7 days