

## Accepted Manuscript

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PII: S0927-7765(17)30873-1  
DOI: <https://doi.org/10.1016/j.colsurfb.2017.12.033>  
Reference: COLSUB 9056

To appear in: *Colloids and Surfaces B: Biointerfaces*

Received date: 11-8-2017  
Revised date: 11-12-2017  
Accepted date: 18-12-2017

Please cite this article as: Mehmet Odabaşı, Lokman Uzun, Gözde Baydemir, Neşe Hayat Aksoy, Ömür Acet, Demet Erdönmez, Cholesterol Imprinted Composite Membranes for Selective Cholesterol Recognition from Intestinal Mimicking Solution, *Colloids and Surfaces B: Biointerfaces* <https://doi.org/10.1016/j.colsurfb.2017.12.033>

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## Cholesterol Imprinted Composite Membranes for Selective Cholesterol Recognition from Intestinal Mimicking Solution

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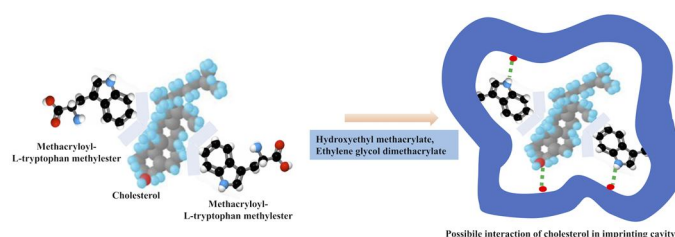
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### Graphical abstract



### Highlights

- Composite membranes were synthesized for specific cholesterol adsorption
- Cholesterol adsorption is 23.43 and 6.79 mg/g for MIPsEM and NIPsEM, respectively
- $\alpha$ -values are 2.39 and 2.04 times higher than estradiol and stigmasterol
- The same membranes were showed 10-times adsorption-desorption cycles

### ABSTRACT

Molecularly imprinted polymers which have been extensively investigated as selective adsorbents were constructed using a template molecule during the polymerization to gain template-specific cavities. In this study, we prepared cholesterol imprinted poly(2-hydroxyethyl methacrylate-methacryloylamidotryptophan) (PHEMA-MTrp) particles embedded composite membranes. These membranes were characterized through elemental analysis, FTIR, SEM, swelling tests, and surface area measurements. Adsorption experiments were performed in a batch experimental set-up, and the adsorption medium was either a methanol or intestinal-mimicking solution. Stigmasterol and estradiol were used as competing molecules in selectivity tests. Some results are as follows: the specific

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