

2016 May 5;778:158-68.

doi: 10.1016/j.ejphar.2015.05.071. Epub 2015 Jun 27.

Mast cell stabilisers

[Tao Zhang](#)¹, [Deirdre Frances Finn](#)¹, [James William Barlow](#)², [John Jarlath Walsh](#)³

Affiliations

- PMID: **26130122**
- DOI: [10.1016/j.ejphar.2015.05.071](https://doi.org/10.1016/j.ejphar.2015.05.071)

Abstract

Mast cells play a critical role in type 1 hypersensitivity reactions. Indeed, mast cell mediators are implicated in many different conditions including allergic rhinitis, conjunctivitis, asthma, psoriasis, mastocytosis and the progression of many different cancers. Thus, there is intense interest in the development of agents which prevent mast cell mediator release or which inhibit the actions of such mediators once released into the environment of the cell. Much progress into the design of new agents has been made since the initial discovery of the mast cell stabilising properties of khellin from *Ammi visnaga* and the clinical approval of cromolyn sodium. This review critically examines the progress that has been made in the intervening years from the design of new agents that target a specific signalling event in the mast cell degranulation pathway to those agents which have been developed where the precise mechanism of action remains elusive. Particular emphasis is also placed on clinically used drugs for other indications that stabilise mast cells and how this additional action may be harnessed for their clinical use in disease processes where mast cells are implicated.

Keywords: Immunoglobulin E (IgE); Mast cells; Stabilisers; Tyrosine kinases.

Copyright © 2015 Elsevier B.V. All rights reserved.

Similar articles

- [Immunopharmacological modulation of mast cells](#). Borriello F, Granata F, Varricchi G, Genovese A, Triggiani M, Marone G. *Curr Opin Pharmacol*. 2014 Aug;17:45-57. doi: 10.1016/j.coph.2014.07.002. Epub 2014 Jul 24. PMID: 25063971 Review.
- [Identification of the Syk kinase inhibitor R112 by a human mast cell screen](#). Rossi AB, Herlaar E, Braselmann S, Huynh S, Taylor V, Frances R, Issakani SD, Argade A, Singh R, Payan DG, Masuda ES. *J Allergy Clin Immunol*. 2006 Sep;118(3):749-55. doi: 10.1016/j.jaci.2006.05.023. Epub 2006 Jul 28. PMID: 16950297
- [Homoisoflavanone prevents mast cell activation and allergic responses by inhibition of Syk signaling pathway](#). Lee YS, Hur S, Kim TY. *Allergy*. 2014 Apr;69(4):453-62. doi:

10.1111/all.12356. Epub 2014 Jan 22. PMID: 24446972

- [Curcumin, a constituent of curry, suppresses IgE-mediated allergic response and mast cell activation at the level of Syk.](#) Lee JH, Kim JW, Ko NY, Mun SH, Her E, Kim BK, Han JW, Lee HY, Beaven MA, Kim YM, Choi WS. J Allergy Clin Immunol. 2008 May; 121(5):1225-31. doi: 10.1016/j.jaci.2007.12.1160. Epub 2008 Apr 18. PMID: 18394691
- [Targeting mast cells: Uncovering prolific therapeutic role in myriad diseases.](#) Singh J, Shah R, Singh D. Int Immunopharmacol. 2016 Nov;40:362-384. doi: 10.1016/j.intimp.2016.09.019. Epub 2016 Sep 29. PMID: 27694038 Review.

[See all similar articles](#)

Cited by 25 articles

- [IL33 and Mast Cells-The Key Regulators of Immune Responses in Gastrointestinal Cancers?](#) Eissmann MF, Buchert M, Ernst M. Front Immunol. 2020 Jul 3;11:1389. doi: 10.3389/fimmu.2020.01389. eCollection 2020. PMID: 32719677 Free PMC article. Review.
- [Repositioning Chromones for Early Anti-inflammatory Treatment of COVID-19.](#) Sestili P, Stocchi V. Front Pharmacol. 2020 Jun 5;11:854. doi: 10.3389/fphar.2020.00854. eCollection 2020. PMID: 32581809 Free PMC article.
- [Cough-provocation tests with hypertonic aerosols.](#) Koskela HO, Nurmi HM, Purokivi MK. ERJ Open Res. 2020 Apr 19;6(2):00338-2019. doi: 10.1183/23120541.00338-2019. eCollection 2020 Apr. PMID: 32337214 Free PMC article. Review.
- [Acupoint application inhibits nerve growth factor and attenuates allergic inflammation in allergic rhinitis model rats.](#) Tu W, Chen X, Wu Q, Ying X, He R, Lou X, Yang G, Zhou K, Jiang S. J Inflamm (Lond). 2020 Feb 10;17:4. doi: 10.1186/s12950-020-0236-9. eCollection 2020. PMID: 32063751 Free PMC article.
- [The Theranostics Role of Mast Cells in the Pathophysiology of Rosacea.](#) Wang L, Wang YJ, Hao D, Wen X, Du D, He G, Jiang X. Front Med (Lausanne). 2020 Jan 28;6:324. doi: 10.3389/fmed.2019.00324. eCollection 2019. PMID: 32047752 Free PMC article. Review.

[See all "Cited by" articles](#)