# Decapeptide-12

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| **Cat. No.:** | HY-P0096 |
| **CAS No.:** | 137665-91-9 |
| **Molecular Formula:** | $KS_3WY_3$ |
| **Molecular Weight:** | 1395.52 |
| **Sequence Shortening:** | YRSRKYSSWY |
| **Target:** | Tyrosinase; Sirtuin |
| **Pathway:** | Metabolic Enzyme/Protease; Cell Cycle/DNA Damage; Epigenetics |
| **Storage:** | Please store the product under the recommended conditions in the Certificate of Analysis. |

## BIOLOGICAL ACTIVITY

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| **Description** | Decapeptide-12, a small oligopeptide, is a tyrosinase inhibitor that interacts with C-terminal residue of tyrosinase ($K_d$: 61.1 μM). Decapeptide-12 is a competitive inhibitor of mushroom tyrosinase ($IC_{50}$: 40 μM). Decapeptide-12 also increases transcription of SIRT. Decapeptide-12 reduces melanin content in melanocytes. Decapeptide-12 is used for the research of melanogenesis, senescence, inflammation [1][2][3]. |
| **$IC_{50}$ & Target** | IC50: 40 μM (Tyrosinase)[1], Kd: 61.1 μM (Tyrosinase)[2]. |
| **In Vitro** | Decapeptide-12 (P4, 0.01-10 mM) dose-dependently inhibits mushroom tyrosinase with an $IC_{50}$ value of 40 μM, and inhibits human tyrosinase by 25-35% at 100 μM[1].<br>Decapeptide-12 (100 μM, 7 days) leads to 43% reduction in melanin content in melanocytes with no effect on cell proliferation[1].<br>Decapeptide-12 (peptide P4, 0-400 μM) inhibits the monophenolase reaction with an $IC_{50}$ value of 123 μM[2].<br>Decapeptide-12 interact with tyrosinase with a $K_d$ value of 61.1 μM[2].<br>Decapeptide-12 (100 μM, 72 h) increases transcription of SIRT1, SIRT3, SIRT6, and SIRT7 with reduced cytotoxicity in human neonatal keratinocyte progenitors[3].<br>Decapeptide-12 (0-1 mM, 72 h) reduces Phytohemagglutinin (PHA)-stimulated PBMC cells proliferation[3].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

Cell Proliferation Assay[3]

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| Cell Line: | Phytohemagglutinin (PHA)-stimulated PBMC cells |
| Concentration: | 0, 0.025, 0.05, 0.1, 0.3, 1 mM |
| Incubation Time: | 72 h |
| Result: | Reduced cell proliferation by 28% at 0.05 mM and 54% at 0.1 mM. |

RT-PCR[3]

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| Cell Line: | Human neonatal keratinocyte progenitors |
| Concentration: | 3, 10, 30, 50, 100, 300, 500, 1000 μM |

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| Incubation Time: | 72 h |
| Result: | Increased transcription of SIRT1 by 141% relative to untreated cells, increased SIRT3, SIRT6 and SIRT7 by 121%, 147% and 95%, respectively. |

## REFERENCES


[1]. Anan Abu Ubeid, et al. Short-sequence oligopeptides with inhibitory activity against mushroom and human tyrosinase. J Invest Dermatol. 2009 Sep;129(9):2242-9.

[2]. Akihito Ochiai, et al. New tyrosinase inhibitory decapeptide: Molecular insights into the role of tyrosine residues. J Biosci Bioeng. 2016 Jun;121(6):607-613.

[3]. Basil M H, et al. Tyrosinase inhibitors with potent anti-senescence activity in human neonatal keratinocyte progenitors. J Dermatol Surg Res Ther, 2019, 2019: 30-39.





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