

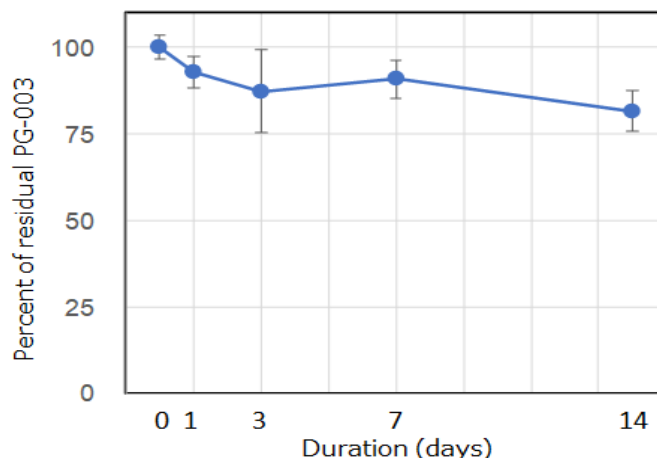
BDNF Alternative (TrkB agonist) Peptide [ID: PG-003] 14days Stability in Cell Culture Medium at 37°C

Brain-derived neurotrophic factor (BDNF) binds to its counter receptor TrkB and increases neuronal cell growth, neuronal survival and synaptic hyperfunction, as one of the essential neurotrophic factors, and it is also confirmed to be expressed in the brain and periphery nerve [1]. BDNF plays an important role in maintaining nerve cell function, and its decrease has been proposed to be associated with the onset of various neurological diseases including dementia, suggesting its usefulness in the study to resolve these disease mechanisms [2, 3].

BDNF is currently used in several experiments to induce differentiation of various nerve cells and to regulate their functions, but the previous report has already suggested that this protein may be unstable in a physiological solution kept at 37°C, and that **its half-life is detected to be approximately several hours** [4]. Therefore, for a long-time culture, the culture should be replaced with fresh medium frequently depending on the used cells type and experimental conditions.

All the growth factor alternative peptides from PeptiGrowth have unique cyclic structure understood to be structurally stable and are expected to be stable in the cell culture media [5]. At this testing, time-dependent changes of BDNF alternative peptide "PG-003" concentrations in a liquid medium under standard cell culture conditions (at 37°C) were determined, demonstrating the **PG-003 concentration was apparently maintained as over 80% even after 2 weeks** (see below).

Changes in PG-003 concentration (initial value set as 100%)



- Method: PG-003 (final concentration: 100 nM) was added into **the liquid medium (commercially available DMEM/F-12)** and maintained at **37° C for 14 days**. Relative concentrations of PG-003 were measured by LC/MS system at several points (at 0, 1, 3, 7, and 14 days).
- Result: **Concentrations were shown as maintained at 80% or higher even after 14 days under normal cell culture conditions** (N=3, mean \pm SD, in the upper graph).

Application Note



- References:
 - 1) Binder DK & Scharfman HE. Growth Factors 2004; 22: 123-131.
 - 2) Tapia-Arancibia L, *et al.* Brain Res Rev. 2008; 59: 201-220.
 - 3) Brunoni AR, *et al.* Int J Neuropsychopharmacol. 2008; 11: 1169-1180.
 - 4) Bruggeman KF, *et al.* Nanoscale. 2017; 9: 13661-13669.
 - 5) Nature Portfolio 2022. [A growing market for synthetically produced peptides \(nature.com\)](https://www.nature.com)
- Precautions regarding the product:
 - Please read the Safety Data Sheet (SDS) carefully prior to use the product.
 - To use this product immediately after dissolving is recommended.
 - This product is a reagent for research use only. Not to use for any purpose other than research or investigational use.
 - Specifications, contents, appearances, etc. of this product may be changed without notice.
 - Contact us or our sales agents, if with any large amounts or other special specification.

Product lineup

Product code	Factor Name
PG-001	HGF alternative peptide
PG-002	TGFβ1 inhibitor
PG-003	BDNF alternative peptide
PG-004	Noggin-like peptide
PG-005	BMP7 selective inhibitor
PG-006	BMP4 selective inhibitor
PG-007	VEGF alternative peptide
PG-008	Wnt3a alternative peptide
PG-009	Synthetic EGF (human)
PG-010	TPO alternative peptide

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