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<th>Tienma and Alzheimer's disease</th>
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<td>Huang, Junjie</td>
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**Introduction**

- **Alzheimer’s Disease**
  - A progressive neurodegenerative disorder characterized by impaired memory and cognitive functions
  - The most common cause of dementia
- **Tienma (TM)**
  - The tubers of *Gastrodia elata*
  - A herb used in Traditional Chinese Medicine to treat headaches, dizziness, tetanus, epilepsy, etc.
  - Herb preparation and chemical constituents (e.g. gastodin) shown to have neuroprotective effects

→ Tienma for Alzheimer’s Disease?

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**Aim**

To study the effect of Tienma extract on the amyloidogenic and non-amyloidogenic pathways of APP processing in N2a cell line (murine neuroblastoma)

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**Methods**

- **TM powder**
- **Aqueous extract**
- **N2a cell culture**
- **ELISA for sAPPα**
- **Western blot**

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**Results**

- **Figure 2.** sAPPα levels in culture supernatant after 24 h exposure to Tienma extract by ELISA
  - Star denotes statistical significance compared with 0 μg/mL (Student’s t-test; P < 0.01).

- **No changes in expression of α- & β-secretase**

- **Figure 3.** Expression of the major α-secretase (ADAM10) and β-secretase (BACE) by Western blot

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**Discussion**

- Tienma increases sAPPα levels, and hence enhances the non-amyloidogenic pathway.
- While the expression of ADAM10 is not altered, the increased sAPPα levels may be achieved by increased ADAM10 activity.

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**Next Step**

- To check for changes in the generation of Aβ and the expression of γ-secretase
- To test for changes in ADAM10 and BACE activities
- To study the effects of longer exposure time to Tienma extract.