

**Zeitschrift:** Bulletin der Schweizerischen Akademie der Medizinischen Wissenschaften = Bulletin de l'Académie suisse des sciences médicales = Bollettino dell' Accademia svizzera delle scienze mediche

**Herausgeber:** Schweizerische Akademie der Medizinischen Wissenschaften

**Band:** 13 (1957)

**Heft:** 1-4: Symposium über Arteriosklerose = Symposium sur l'artériosclérose = Symposium on arteriosclerosis

**Artikel:** The mechanisme of action of new hypocholesterolemic substances

**Autor:** Garattini, S.

**DOI:** <https://doi.org/10.5169/seals-307339>

### **Nutzungsbedingungen**

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

### **Conditions d'utilisation**

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

### **Terms of use**

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

**Download PDF:** 30.04.2026

**ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>**

From the Institute of Pharmacology, University of Milan – Director: Prof. E. Trabucchi

## The Mechanism of Action of new Hypocholesterolemic Substances

By S. Garattini

Starting from the present knowledge on the importance of Coenzyme A for the synthesis of cholesterol and lipids, it was presumed to be possible to interfere actively with these substances by finding drugs inhibiting the acetylizing activity of Coenzyme A.

Therefore, in connection with the researches carried out by *Cottet* on the hypocholesterolemic effect of phenylethylacetic acid, new molecules were synthesized, in which, the phenylic group was substituted by a “diphenylic”, “diphenylic”, “stilbenic” or “diphenylethanic” group (1). Such molecules proved capable of blocking to different degrees the processes of acetylation “in vitro” both of an aromatic amine (2, 3) and of choline (4).

These molecules inhibit “in vitro” the oxygen consumption of liver, heart or brain homogenate; this inhibition, however, becomes more marked when the consumption of oxygen increases after addition of certain metabolites of Krebs’s cycle (piruvic acid,  $\alpha$ -ketoglutaric acid, citric acid [5]). Also “in vivo” the derivatives we studied appear to inhibit the acetylation of sulfanilamide (4).

As far as the metabolism of cholesterol and of lipids is concerned, we were able to demonstrate, by using diphenyllethylacetic acid, that a lowering in the incorporation of radioactive 1-<sup>14</sup>C-acetate takes place both in lipids and in cholesterol. Instead, the oxydation of acetic acid appears to be influenced to a lesser degree (6, 7). A direct comparison of activity between phenylethylacetic acid and diphenyllethylacetic acid shows that the latter substance is about ten times more active than the former. “In vivo”, furthermore, in a test producing increased endogenous synthesis of cholesterol and lipids (hypercholesterolemia and hyperlipemia caused by Triton), diphenyllethylacetic acid exercises a hypocholesterolemic and hypolipemic effect (8, 9). Diphenyllethylacetic acid has also been used in clinic at doses of 300 mg per day in patients

with hypercholesterolemia and hyperlipemia (10, 11), and the results appear to be favourable.

1. *Cavallini, G., and Massarani, E.*: *Farmaco* **11**, 167 (1956). – 2. *Garattini, S., Morpurgo, C. and Passerini, N.*: *G. ital. Chem.* **2**, 60 (1955). – 3. *Garattini, S., Morpurgo, C. and Passerini, N.*: *Boll. Soc. ital. Biol. sper.* **31**, 1653 (1955). – 4. *Garattini, S., Morpurgo, C., Murelli, B., Paoletti, R., and Passerini, N.*: *Arch. int. Pharmacodyn.* 1956 (in press). – 5. *Canal, N., and Garattini, S.*: *Boll. Soc. ital. Biol. sper.* 1956 (in press). – 6. *Garattini, S., Paoletti, P., and Paoletti, R.*: *G. Bioch.* 1956 (in press). – 7. *Garattini, S., Paoletti, P., and Paoletti, R.*: *Boll. Soc. ital. Biol. sper.* 1956 (in press). – 8. *Garattini, S., Morpurgo, C., and Passerini, N.*: *Boll. Soc. ital. Biol. sper.* **32**, 80 (1956). – 9. *Garattini, S., Morpurgo, C., and Passerini, N.*: *Experientia (Basel)* **12**, 347 (1956). – 10. *Annoni, G.*: *Farmaco* **11**, 244 (1956). – 11. *Sabbadini, E., Campani, M., and Gazzaniga, M.*: *Min. Med.* **47**, 2048 (1956).