

Linkers from Linz

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Ordering:

- Please download our **order form** from our website <http://www.jku.at/biophysics/content> (*section "Crosslinkers and Protocols for AFM Tip Functionalization" in the list on the left of this webpage*), fill out and mail to hermann.gruber@jku.at.
- When filled out properly, the order form provides all of data required for processing of the order, for ship of the material, and for passing the custom control in the country of the recipient.
- Most European Universities reserve the right of ordering for their central purchasing department. Unfortunately, the purchasing departments usually send the purchase orders in their native language which we cannot read. It is essential that, in addition, our "order form" is filled out in parallel, otherwise we cannot process the order and ship the material.

Packaging, shipment, and storage:

- All linkers are provided in packs with 10 single-use portions in crimp-sealed glass vials, with Teflon-coated silicon lining. The silicon elastomer stays elastic at -25°C and ensures a permanent seal when you store the linkers in the freezer.
- **Upon arrival, please store the linkers at -20°C to -25°C.** Do not store at -80°C because the Teflon-coated silicon seal may become leaky at this low temperature.

Invoicing:

- After arrival of the linkers, an invoice will be sent to the customer from the Johannes Kepler University of Linz. Please, transfer the money to the bank account specified below.
- Do not make any payment before you have received the invoice!

Payment by international bank transfer

For the money transfer it is important to specify the following data.

Recipient: Johannes Kepler University
Bank: Raiffeisenlandesbank OOE
IBAN: AT66 3400 0000 0262 4773
BIC: RZOOAT2L
Invoice number: AR.....

Payment by credit card

Johannes Kepler University accepts the following credit cards:

- American Express
- Diners Club
- JCB (Japan Credit Bureau)
- Mastercard
- VISA

Please, supply the following data:

1. Name of card holder
2. Name of credit card company
3. Card number
4. Expiration date
5. Safety code (three digits on the back of your card)
6. Invoice number (AR.....)

For safety reasons, you can transmit the above credit card data in small portions in two or three separate emails to hermann.gruber@jku.at. If you prefer, you can also send a part of these critical data via telefax to Hermann Gruber (+43-732-2468-7563).

Tax-free within Europe:

Johannes Kepler University Linz (**JKU**) is classified as "small enterprise", therefore JKU is not allowed to include taxes in any invoice. Consequently, any item sold by JKU is tax-free throughout the European Union. No additional tax can be added by the home country of the customer. In other words: the prices shown in the tables are therefore the full prices for European customers. Customers from outside the European Union may have to pay import taxes when the shipment arrives in their country. For such customers the "EORI number" of the University of Linz may be of interest (see below).

VAT number of JKU: ATU 57515567
EORI number of JKU: ATEOS1000017623

JKU has **no commercial registration number** (company registration number) because it is not a company.

Terms and conditions

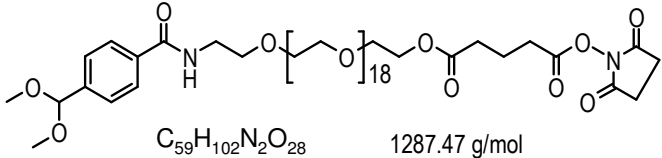
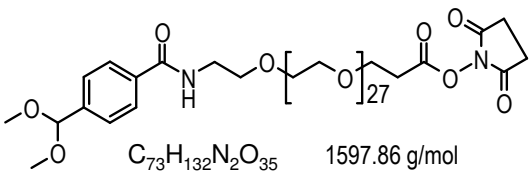
1. Prices are net prices and do not include tax or customs charges. The customer is responsible for paying any additional tax or customs charges.
2. Within the European Union, the linkers are tax-free! In Europe, universities have the same status as a "small enterprise". This means that universities cannot get back the sales tax from the government, and in return, all invoices from universities are tax-free.
3. The shipping costs are an additional item in the invoice. However, they are cancelled if more than one pack is ordered.
4. Shipments are sent with one original and two copies of an "Invoice for Customs Purposes". The sender is not responsible for further actions necessary for customs clearance.
5. The linker molecules are only intended for research, not for diagnostic, therapeutic or household purposes.
6. Besides the specified main component, the linkers contain a small fraction of free carboxylic acid and free *N*-hydroxysuccinimide which have no influence on the performance of the linker in the procedures described in the manuals.
7. The linkers are shipped without coolant to keep the shipping costs low. So far, the linkers have always arrived intact, even after delayed delivery. Nevertheless, degradation cannot be excluded if the delivery is very much delayed or if the material is exposed to excessive heat.
8. If it is unclear whether the linkers were degraded during shipment then new linkers will be sent without charge to the customer and the customer agrees that all claims are satisfied in this way. Problems with linker performance must be reported within four weeks after linker arrival.
9. The linkers have successfully been applied by different users in our laboratory. We have done our best to provide descriptions in our manuals that will enable reproduction in other laboratories. Nevertheless, failure may occur with intact linkers also, due to impurities or ingredients or circumstances which cannot be foreseen.
10. Placement of an order automatically implies that the customer agrees to these terms and conditions.

Price list and shipping charges

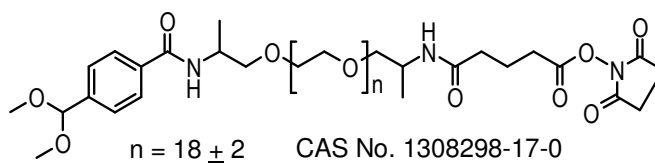
The prices had to be adjusted in 2016 in order to cover the current input costs.

item	pack size	price
Acetal-PEG18-NHS	10 x 1 mg	€ 160.00
Acetal-PEG27-NHS	10 x 1 mg	€ 160.00
Azide-PEG18-NHS	10 x 1 mg	€ 120.00
Biotin-PEG18-NHS	10 x 1 mg	€ 160.00
Biotin-PEG27-NHS	10 x 1 mg	€ 160.00
Maleimide-PEG27-NHS	10 x 1 mg	€ 100.00
SDMB-10	10 x 1 mg	€ 80.00
SDMB-50	50 mg	€ 160.00
shipping charge	---	€ 50.00

Acetal Linkers

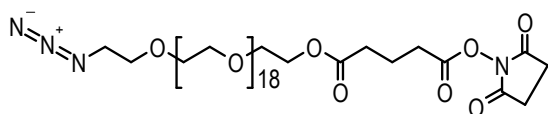
product name / structure	pack size	price
<p>Acetal-PEG18-NHS</p>  <p>$C_{59}H_{102}N_2O_{28}$ 1287.47 g/mol</p>	10 x 1 mg	€ 160.00
<p>Acetal-PEG27-NHS</p>  <p>$C_{73}H_{132}N_2O_{35}$ 1597.86 g/mol</p>	10 x 1 mg	€ 160.00

The above acetal linkers are homologous to the published form of Acetal-PEG-NHS (CAS No. 1308298-17-0) shown below.

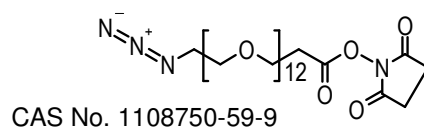


Wildling, L., Unterauer, B., Zhu, R., Rupprecht, A., Haselgrübler, T., Rankl, C., Ebner, A., Vater, D., Pollheimer, P., Pohl, E., Hinterdorfer, P., and Gruber, H. J.* (2011) Linking of sensor molecules with amino groups to aminofunctionalized AFM tips. *Bioconjugate Chem.* 22, 1239-1248.

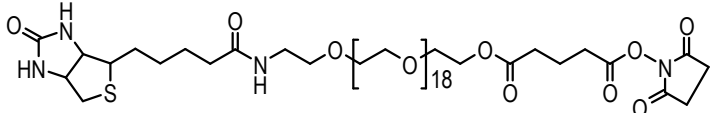
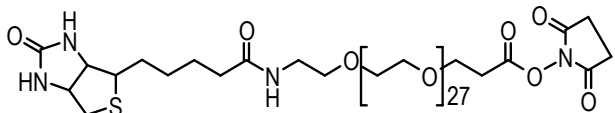
Azide Linker

product name / structure	pack size	price
<p>Azide-PEG18-NHS</p>  <p>$C_{49}H_{90}N_4O_{25}$ 1135.28 g/mol</p>	10 x 1 mg	€ 120.00

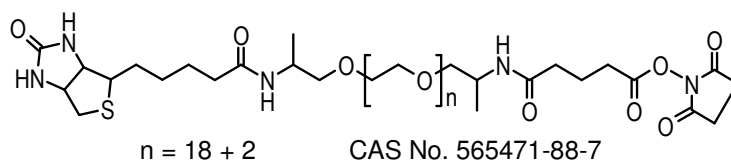
The above acetal linkers are homologous to Azide-PEG₁₂-NHS (CAS No. 1108750-59-9).



Biotin Linkers

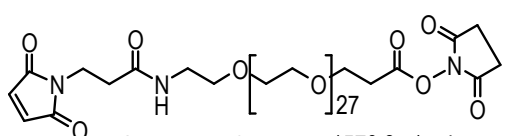
product name / structure	pack size	price
<p>Biotin-PEG18-NHS</p>  <p>$C_{59}H_{106}N_4O_{27}S$ 1335.6 g/mol</p>	10 x 1 mg	€ 160.00
<p>Biotin-PEG27-NHS</p>  <p>$C_{73}H_{136}N_4O_{34}S$ 1646.0 g/mol</p>	10 x 1 mg	€ 160.00

The above biotin linkers are homologous to the published form of Biotin-PEG-NHS (CAS No. 565471-88-7) shown below.



Riener, C. K., Stroh, C. M., Ebner, A., Klampfl, C., Gall, A. A., Romanin, C., Lyubchenko, Y. L., Hinterdorfer, P., and Gruber*, H. J. (2003) Simple test system for single molecule recognition force microscopy. *Anal. Chim. Acta* 479, 59-75.

Maleimide Linker

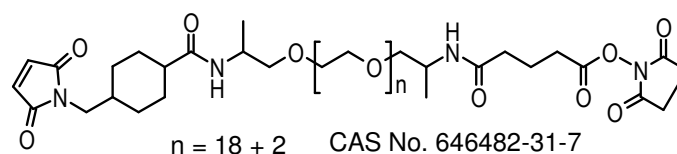
product name / structure	pack size	price
Mal-PEG27-NHS  $C_{70}H_{127}N_3O_{35}$ 1570.8 g/mol	10 x 1 mg	€ 100.00

Published example for AFM tip derivatization with Maleimide-PEG27-NHS:

Nimmervoll, B., Chtcheglova, L. A., Juhasz, K., Cremnades, N., Aprile, F. A., Sonnleitner, A., Hinterdorfer, P., Vigh, L., Preiner, J., and Balogi, Z.* (2015) Cell surface localised Hsp70 is a cancer specific regulator of clathrin-independent endocytosis. *FEBS Lett.*, *in press*.

This maleimide linker is not synthesized in Linz but is purchased from Polypure in Oslo, Norway (www.polypure.com). The smallest quantity available from Polypure is 100 mg. We use this linker in Linz, therefore we keep a stock of 1 mg quantities for single use which we can share with our customers if they prefer to obtain the ready-to-use portions.

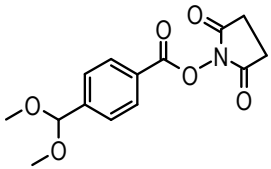
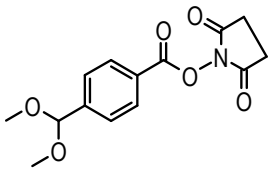
The above biotin linkers are homologous to the published form of Maleimide-PEG-NHS (CAS No. 646482-31-7) shown below.



Riener, C. K., Kienberger, F., Hahn, C. D., Buchinger, G. M., Egwim, I. O. C., Haselgrübler, T., Ebner, A., Romanin, C., Klampfl, C., Lackner, B., Prinz, H., Blaas, D., Hinterdorfer, P., and Gruber*, H. J. (2003) Heterobifunctional crosslinkers for linking of single ligand molecules to scanning probes. *Anal. Chim. Acta* 497, 101-114

SDMB

Succinimidyl 4-(dimethoxymethyl)benzoate,
4-(dimethoxymethyl)benzoic acid, N-hydroxysuccinimide ester

product name / structure	pack size	price
<p>SDMB-10</p>  <p>$C_{14}H_{15}NO_6$ 293.28 g/mol CAS No. 120465-57-8</p>	10 x 1 mg <i>(10 vials with 1mg per vial)</i>	€ 80.00
<p>SDMB-50</p>  <p>$C_{14}H_{15}NO_6$ 293.28 g/mol CAS No. 120465-57-8</p>	50 mg <i>(one vial with 50mg)</i>	€ 150.00

Other names:

Benzoic acid, 4-(dimethoxymethyl)-, 2,5-dioxo-1-pyrrolidinyl ester

2,5-pyrrodidinedione, 1-[[4-(dimethoxymethyl)benzoyl]oxy]-

CAS No. 120465-57-8

Wildling, L., Unterauer, B., Zhu, R., Rupprecht, A., Haselgrübler, T., Rankl, C., Ebner, A., Vater, D., Pollheimer, P., Pohl, E., Hinterdorfer, P., and Gruber, H. J.* (2011) Linking of sensor molecules with amino groups to aminofunctionalized AFM tips. *Bioconjugate Chem.* 22, 1239-1248.