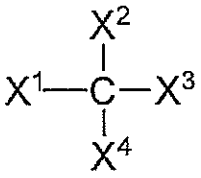
Amended Claims pursuant to Art. 19 PCT

1. Catheter balloon with or without crimped stent, wherein the surface of the catheter balloon is coated at least partially with at least one antirestenotic agent and at least one transport promoting molecular dispersant, wherein the at least one transport promoting molecular dispersant is at least one compound of general formula (I):



wherein

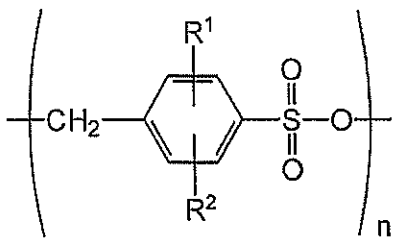
X^1 represents one of the following residues
$-L^1-R^{18}$, $-C(R^3)(R^4)-L^1-R^{18}$, $-L^1-C(R^3)(R^4)-R^{18}$, $-C(R^3)(R^4)-L^1-C(R^5)(R^6)-R^{18}$, $-L^1-Y-R^{18}$, $-Y-L^1-R^{18}$, $-Y-C(R^3)(R^4)-L^1-R^{18}$, $-C(R^3)(R^4)-Y-L^1-R^{18}$, $-C(R^3)(R^4)-L^1-Y-R^{18}$, $-Y-L^1-C(R^3)(R^4)-R^{18}$, $-L^1-Y-C(R^3)(R^4)-R^{18}$, $-L^1-C(R^3)(R^4)-Y-R^{18}$, $-Y-C(R^3)(R^4)-L^1-C(R^5)(R^6)-R^{18}$, $-C(R^3)(R^4)-Y-L^1-C(R^5)(R^6)-R^{18}$, $-C(R^3)(R^4)-L^1-Y-C(R^5)(R^6)-R^{18}$, $-C(R^3)(R^4)-L^1-C(R^5)(R^6)-Y-R^{18}$;

X^2 represents one of the following residues
$-R^7$, $(-CH_2-)_p-R^7$, $(-O-CH_2-)_p-R^7$;

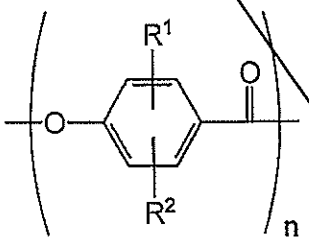
X^3 represents one of the following residues
$-M^1-R^{26}$, $-M^1-M^2-R^{26}$, $-M^1-(M^2)_r-M^3-R^{26}$, $-M^1-(M^2)_r-M^3-(M^4)_s-R^{26}$;

X^4 represents one of the following residues
$-L^2-R^{19}$, $-C(R^{10})(R^{11})-L^2-R^{19}$, $-L^2-C(R^{10})(R^{11})-R^{19}$, $-C(R^{10})(R^{11})-C(R^{12})(R^{13})-L^2-R^{19}$, $-C(R^{10})(R^{11})-L^2-C(R^{12})(R^{13})-R^{19}$, $-L^2-C(R^{10})(R^{11})-C(R^{12})(R^{13})-R^{19}$;

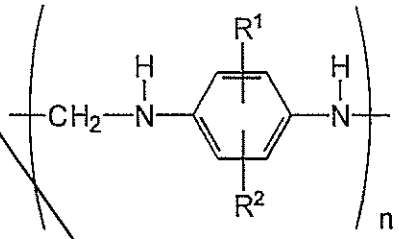
L^1 represents one of the following groups



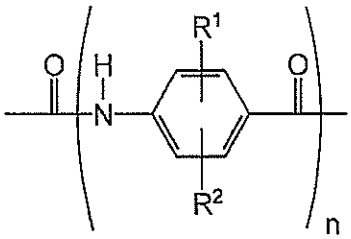
linker 1



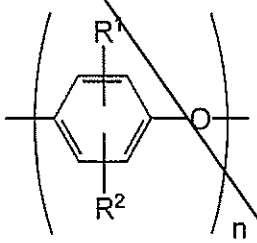
linker 2



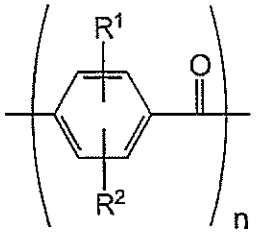
linker 3



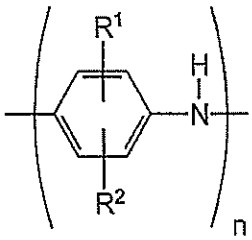
linker 4



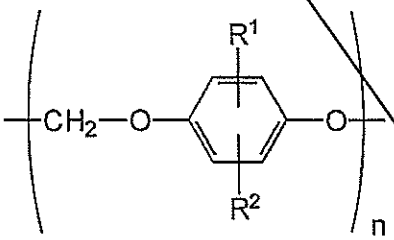
linker 5



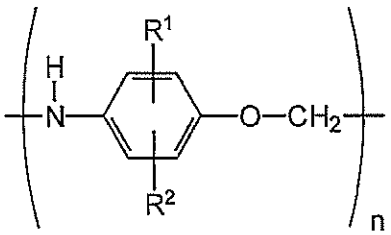
linker 6



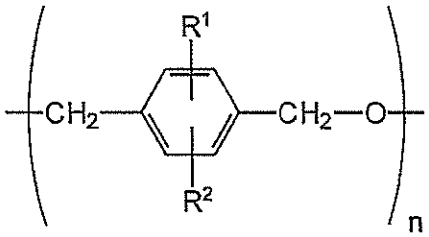
linker 7



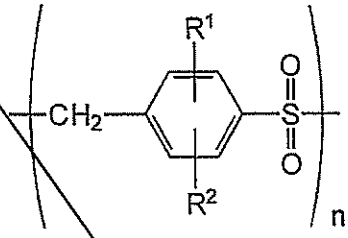
linker 8



linker 9



linker 10

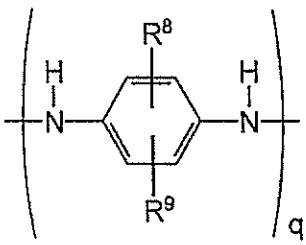


linker 11

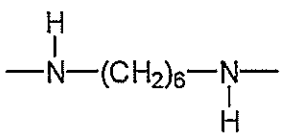
L^2 represents one of the following groups

–O–CO–, –NH–CO–, –CO–, –O–, –NH–, –CO–O–, –CO–NH–, –NH–CO–O–, –O–CO–NH–, –O–CO–O–, –NH–CO–NH–;

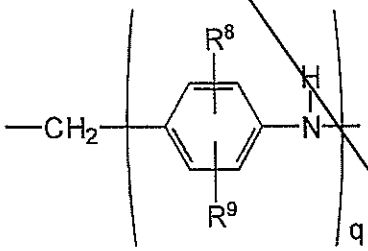
M^1 represents one of the following groups



group 1



group 2



group 3

M^2 represents one of the following groups
$-CH_2-$, $-CH_2-CH_2-$, $-CH_2-CH_2-CH_2-$, $-CH_2-CH_2-CH_2-CH_2-$, $-O-$, $-O-CH_2-$, $-O-CH_2-CH_2-$, $-O-CH_2-CH_2-CH_2-$, $-O-CH_2-CH_2-CH_2-CH_2-$, $-O-CO-$, $-O-CO-CH_2-$, $-O-CO-CH_2-CH_2-$, $-O-CO-CH_2-CH_2-CH_2-$, $-O-CO-CH_2-CH_2-CH_2-CH_2-$, $-CO-$, $-CO-CH_2-$, $-CO-CH_2-CH_2-$, $-CO-CH_2-CH_2-CH_2-$, $-CO-CH_2-CH_2-CH_2-CH_2-$;

M^3 represents one of the following groups
a bond, $-NH-$, $-NH-CO-$, $-NH-CO-NH-$, $-NH-CS-$, $-NH-CS-NH-$, $-NH-C(NH)-NH-$;

M^4 represents one of the following groups
$(-CH_2-O-CH_2-)_t$, $(-O-CH_2-CH_2-)_t$, $(-CH_2-CH_2-O-)_t$;

Y represents $(-CH_2-)_m$, $(-CH_2-O-)_m$, $(-O-CH_2-)_m$, $(-CH_2-CH_2-O-)_m$, or $(-CH_2-CH_2-CH_2-O-)_m$;

R^1 to R^{13} represent independently of each other the following residues: $-R^{14}$ to $-R^{30}$, $-OH$, $-OCH_3$, $-OC_2H_5$, $-OC_3H_7$, $-O$-cyclo-C_3H_5, $-OCH(CH_3)_2$, $-OC(CH_3)_3$, $-OC_4H_9$, $-OPh$, $-OCH_2-Ph$, $-OCPh_3$, $-SH$, $-SCH_3$, $-SC_2H_5$, $-SC_3H_7$, $-S$-cyclo-C_3H_5, $-SCH(CH_3)_2$, $-SC(CH_3)_3$, $-NO_2$, $-F$, $-Cl$, $-Br$, $-I$, $-P(O)(OH)_2$, $-P(O)(OCH_3)_2$, $-P(O)(OC_2H_5)_2$, $-P(O)(OCH(CH_3)_2)_2$, $-C(OH)[P(O)(OH)_2]_2$, $-Si(CH_3)_2(C(CH_3)_3)$, $-Si(C_2H_5)_3$, $-Si(CH_3)_3$, $-N_3$, $-CN$, $-OCN$, $-NCO$, $-SCN$, $-NCS$, $-CHO$, $-COCH_3$, $-COC_2H_5$, $-COC_3H_7$, $-CO$-cyclo-C_3H_5, $-COCH(CH_3)_2$, $-COC(CH_3)_3$, $-COOH$, $-COCN$, $-COOCH_3$, $-COOC_2H_5$, $-COOC_3H_7$, $-COO$-cyclo-C_3H_5, $-COOCH(CH_3)_2$, $-COOC(CH_3)_3$, $-O-CO-R^{14}$, $-CONH_2$, $-CONHCH_3$, $-CONHC_2H_5$, $-CONHC_3H_7$, $-CONH$-cyclo-C_3H_5, $-CONH[CH(CH_3)_2]$, $-CONH[C(CH_3)_3]$, $-CON(CH_3)_2$, $-CON(C_2H_5)_2$, $-CON(C_3H_7)_2$, $-CON$(cyclo-$C_3H_5)_2$, $-CON[CH(CH_3)_2]_2$, $-CON[C(CH_3)_3]_2$, $-NHCOCH_3$, $-NHCOC_2H_5$, $-NHCOC_3H_7$, $-NHCO$-cyclo-C_3H_5, $-NHCO-CH(CH_3)_2$, $-NHCO-C(CH_3)_3$, $-NHCO-OCH_3$, $-NHCO-OC_2H_5$, $-NHCO-OC_3H_7$, $-NHCO-O$-cyclo-C_3H_5, $-NHCO-OCH(CH_3)_2$, $-NHCO-OC(CH_3)_3$, $-NH_2$, $-NHCH_3$, $-NHC_2H_5$, $-NHC_3H_7$, $-NH$-cyclo-C_3H_5, $-NHCH(CH_3)_2$, $-NHC(CH_3)_3$, $-N(CH_3)_2$, $-N(C_2H_5)_2$, $-N(C_3H_7)_2$, $-N$(cyclo-$C_3H_5)_2$, $-N[CH(CH_3)_2]_2$, $-N[C(CH_3)_3]_2$, $-SOCH_3$, $-SOC_2H_5$, $-SOC_3H_7$, $-SO$-cyclo-C_3H_5, $-SOCH(CH_3)_2$, $-SOC(CH_3)_3$, $-SO_2CH_3$, $-SO_2C_2H_5$, $-SO_2C_3H_7$, $-SO_2$-cyclo-C_3H_5, $-SO_2CH(CH_3)_2$, $-SO_2C(CH_3)_3$, $-SO_3H$, $-SO_3CH_3$, $-SO_3C_2H_5$, $-SO_3C_3H_7$,

$-SO_3$–cyclo-C_3H_5, $-SO_3CH(CH_3)_2$, $-SO_3C(CH_3)_3$, $-SO_2NH_2$, $-OCF_3$, $-OC_2F_5$, –O–$COOCH_3$, –O–$COOC_2H_5$, –O–$COOC_3H_7$, –O–COO–cyclo-C_3H_5, –O–$COOCH(CH_3)_2$, –O–$COOC(CH_3)_3$, –NH–CO–NH_2, –NH–CO–$NHCH_3$, –NH–CO–NHC_2H_5, –NH–CO–NHC_3H_7, –NH–CO–NH–cyclo-C_3H_5, –NH–CO–$NH[CH(CH_3)_2]$, –NH–CO–$NH[C(CH_3)_3]$, –NH–CO–$N(CH_3)_2$, –NH–CO–$N(C_2H_5)_2$, –NH–CO–$N(C_3H_7)_2$, –NH–CO–N(cyclo-$C_3H_5)_2$, –NH–CO–$N[CH(CH_3)_2]_2$, –NH–CO–$N[C(CH_3)_3]_2$, –NH–CS–NH_2, –NH–CS–$NHCH_3$, –NH–CS–NHC_2H_5, –NH–CS–NHC_3H_7, –NH–CS–NH–cyclo-C_3H_5, –NH–CS–$NH[CH(CH_3)_2]$, –NH–CS–$NH[C(CH_3)_3]$, –NH–CS–$N(CH_3)_2$, –NH–CS–$N(C_2H_5)_2$, –NH–CS–$N(C_3H_7)_2$, –NH–CS–N(cyclo-$C_3H_5)_2$, –NH–CS–$N[CH(CH_3)_2]_2$, –NH–CS–$N[C(CH_3)_3]_2$, –NH–C(=NH)–NH_2, –NH–C(=NH)–$NHCH_3$, –NH–C(=NH)–NHC_2H_5, –NH–C(=NH)–NHC_3H_7, –NH–C(=NH)–NH–cyclo-C_3H_5, –NH–C(=NH)–$NH[CH(CH_3)_2]$, –NH–C(=NH)–$NH[C(CH_3)_3]$, –NH–C(=NH)–$N(CH_3)_2$, –NH–C(=NH)–$N(C_2H_5)_2$, –NH–C(=NH)–$N(C_3H_7)_2$, –NH–C(=NH)–N(cyclo-$C_3H_5)_2$, –NH–C(=NH)–$N[CH(CH_3)_2]_2$, –NH–C(=NH)–$N[C(CH_3)_3]_2$, –O–CO–NH_2, –O–CO–$NHCH_3$, –O–CO–NHC_2H_5, –O–CO–NHC_3H_7, –O–CO–NH–cyclo-C_3H_5, –O–CO–$NH[CH(CH_3)_2]$, –O–CO–$NH[C(CH_3)_3]$, –O–CO–$N(CH_3)_2$, –O–CO–$N(C_2H_5)_2$, –O–CO–$N(C_3H_7)_2$, –O–CO–N(cyclo-$C_3H_5)_2$, –O–CO–$N[CH(CH_3)_2]_2$, –O–CO–$N[C(CH_3)_3]_2$, –O–CO–OCH_3, –O–CO–OC_2H_5, –O–CO–OC_3H_7, –O–CO–O–cyclo-C_3H_5, –O–CO–$OCH(CH_3)_2$, –O–CO–$OC(CH_3)_3$;

R^{14} to R^{30} represent independently of each other the following residues:

$-CH_2F$, $-CHF_2$, $-CF_3$, $-CH_2Cl$, $-CH_2Br$, $-CH_2I$, $-CH_2-CH_2F$, $-CH_2-CHF_2$, $-CH_2-CF_3$, $-CH_2-CH_2Cl$, $-CH_2-CH_2Br$, $-CH_2-CH_2I$, cyclo-C_3H_5, cyclo-C_4H_7, cyclo-C_5H_9, cyclo-C_6H_{11}, cyclo-C_7H_{13}, cyclo-C_8H_{15}, –Ph, $-CH_2$–Ph, $-CPh_3$, –H, $-CH_3$, $-C_2H_5$, $-C_3H_7$, $-CH(CH_3)_2$, $-C_4H_9$, $-CH_2-CH(CH_3)_2$, $-CH(CH_3)-C_2H_5$, $-C(CH_3)_3$, $-C_5H_{11}$, $-CH(CH_3)-C_3H_7$, $-CH_2-CH(CH_3)-C_2H_5$, $-CH(CH_3)-CH(CH_3)_2$, $-C(CH_3)_2-C_2H_5$, $-CH_2-C(CH_3)_3$, $-CH(C_2H_5)_2$, $-C_2H_4-CH(CH_3)_2$, $-C_6H_{13}$, $-C_7H_{15}$, $-C_8H_{17}$, $-C_3H_6-CH(CH_3)_2$, $-C_2H_4-CH(CH_3)-C_2H_5$, $-CH(CH_3)-C_4H_9$, $-CH_2-CH(CH_3)-C_3H_7$, $-CH(CH_3)-CH_2-CH(CH_3)_2$, $-CH(CH_3)-CH(CH_3)-C_2H_5$, $-CH_2-CH(CH_3)-CH(CH_3)_2$, $-CH_2-C(CH_3)_2-C_2H_5$, $-C(CH_3)_2-C_3H_7$, $-C(CH_3)_2-CH(CH_3)_2$, $-C_2H_4-C(CH_3)_3$, $-CH(CH_3)-C(CH_3)_3$, $-CH=CH_2$, $-CH_2-CH=CH_2$, $-C(CH_3)=CH_2$, $-CH=CH-CH_3$, $-C_2H_4-CH=CH_2$, $-CH_2-CH=CH-CH_3$, $-CH=CH-C_2H_5$, $-CH_2-C(CH_3)=CH_2$, $-CH(CH_3)-CH=CH$, $-CH=C(CH_3)_2$, $-C(CH_3)=CH-CH_3$, $-CH=CH-CH=CH_2$, $-C_3H_6-CH=CH_2$, $-C_2H_4-CH=CH-CH_3$, $-CH_2-CH=CH-C_2H_5$, $-CH=CH-C_3H_7$, $-CH_2-CH=CH-CH=CH_2$,

–CH=CH–CH=CH–CH_3, –CH=CH–CH_2–CH=CH_2, –C(CH_3)=CH–CH=CH_2, –CH=C(CH_3)–CH=CH_2, –CH=CH–C(CH_3)=CH_2, –C_2H_4–C(CH_3)=CH_2, –CH_2–CH(CH_3)–CH=CH_2, –CH(CH_3)–CH_2–CH=CH_2, –CH_2–CH=C(CH_3)$_2$, –CH_2–C(CH_3)=CH–CH_3, –CH(CH_3)–CH=CH–CH_3, –CH=CH–CH(CH_3)$_2$, –CH=C(CH_3)–C_2H_5, –C(CH_3)=CH–C_2H_5, –C(CH_3)=C(CH_3)$_2$, –C(CH_3)$_2$–CH=CH_2, –CH(CH_3)–C(CH_3)=CH_2, –C(CH_3)=CH–CH=CH_2, –CH=C(CH_3)–CH=CH_2, –CH=CH–C(CH_3)=CH_2, –C_4H_8–CH=CH_2, –C_3H_6–CH=CH–CH_3, –C_2H_4–CH=CH–C_2H_5, –CH_2–CH=CH–C_3H_7, –CH=CH–C_4H_9, –C_3H_6–C(CH_3)=CH_2, –C_2H_4–CH(CH_3)–CH=CH_2, –CH_2–CH(CH_3)–CH_2–CH=CH_2, –CH(CH_3)–C_2H_4–CH=CH_2, –C_2H_4–CH=C(CH_3)$_2$, –C_2H_4–C(CH_3)=CH–CH_3, –CH_2–CH(CH_3)–CH=CH–CH_3, –CH(CH_3)–CH_2–CH=CH–CH_3, –CH_2–CH=CH–CH(CH_3)$_2$, –CH_2–CH=C(CH_3)–C_2H_5, –CH_2–C(CH_3)=CH–C_2H_5, –CH(CH_3)–CH=CH–C_2H_5, –CH=CH–CH_2–CH(CH_3)$_2$, –CH=CH–CH(CH_3)–C_2H_5, –CH=C(CH_3)–C_3H_7, –C(CH_3)=CH–C_3H_7, –CH_2–CH(CH_3)–C(CH_3)=CH_2, –CH(CH_3)–CH_2–C(CH_3)=CH_2, –CH(CH_3)–CH(CH_3)–CH=CH_2, –CH_2–C(CH_3)$_2$–CH=CH_2, –C(CH_3)$_2$–CH_2–CH=CH_2, –CH_2–C(CH_3)=C(CH_3)$_2$, –CH(CH_3)–CH=C(CH_3)$_2$, –C(CH_3)$_2$–CH=CH–CH_3, –CH(CH_3)–C(CH_3)=CH–CH_3, –CH=C(CH_3)–CH(CH_3)$_2$, –C(CH_3)=CH–CH(CH_3)$_2$, –C(CH_3)=C(CH_3)–C_2H_5, –CH=CH–C(CH_3)$_3$, –C(CH_3)$_2$–C(CH_3)=CH_2, –CH(C_2H_5)–C(CH_3)=CH_2, –C(CH_3)(C_2H_5)–CH=CH_2, –CH(CH_3)–C(C_2H_5)=CH_2, –CH_2–C(C_3H_7)=CH_2, –CH_2–C(C_2H_5)=CH–CH_3, –CH(C_2H_5)–CH=CH–CH_3, –C(C_4H_9)=CH_2, –C(C_3H_7)=CH–CH_3, –C(C_2H_5)=CH–C_2H_5, –C(C_2H_5)=C(CH_3)$_2$, –C[C(CH_3)$_3$]=CH_2, –C[CH(CH_3)(C_2H_5)]=CH_2, –C[CH_2–CH(CH_3)$_2$]=CH_2, –C_2H_4–CH=CH–CH=CH_2, –CH_2–CH=CH–CH_2–CH=CH_2, –CH=CH–C_2H_4–CH=CH_2, –CH_2–CH=CH–CH=CH–CH_3, –CH=CH–CH_2–CH=CH–CH_3, –CH=CH–CH=CH–C_2H_5, –CH_2–CH=CH–C(CH_3)=CH_2, –CH_2–CH=C(CH_3)–CH=CH_2, –CH_2–C(CH_3)=CH–CH=CH_2, –CH(CH_3)–CH=CH–CH=CH_2, –CH=CH–CH_2–C(CH_3)=CH_2, –CH=CH–CH(CH_3)–CH=CH_2, –CH=C(CH_3)–CH_2–CH=CH_2, –C(CH_3)=CH–CH_2–CH=CH_2, –CH=CH–CH=C(CH_3)$_2$, –CH=CH–C(CH_3)=CH–CH_3, –CH=C(CH_3)–CH=CH–CH_3, –C(CH_3)=CH–CH=CH–CH_3, –CH=C(CH_3)–C(CH_3)=CH_2, –C(CH_3)=CH–C(CH_3)=CH_2, –C(CH_3)=C(CH_3)–CH=CH_2, –CH=CH–CH=CH–CH=CH_2, –C≡CH, –C≡C–CH_3, –CH_2–C≡CH, –C_2H_4–C≡CH, –CH_2–C≡C–CH_3, –C≡C–C_2H_5, –C_3H_6–C≡CH, –C_2H_4–C≡C–CH_3, –CH_2–C≡C–C_2H_5, –C≡C–C_3H_7, –CH(CH_3)–C≡CH, –CH_2–CH(CH_3)–C≡CH, –CH(CH_3)–CH_2–C≡CH, –CH(CH_3)–C≡C–CH_3, –C_4H_8–C≡CH, –C_3H_6–C≡C–CH_3, –C_2H_4–C≡C–C_2H_5, –CH_2–C≡C–C_3H_7, –C≡C–C_4H_9, –C_2H_4–CH(CH_3)–C≡CH, –CH_2–CH(CH_3)–CH_2–C≡CH, –CH(CH_3)–C_2H_4–C≡CH, –CH_2–CH(CH_3)–C≡C–CH_3, –CH(CH_3)–CH_2–C≡C–CH_3,

$-CH(CH_3)-C\equiv C-C_2H_5$, $-CH_2-C\equiv C-CH(CH_3)_2$, $-C\equiv C-CH(CH_3)-C_2H_5$, $-C\equiv C-CH_2-CH(CH_3)_2$, $-C\equiv C-C(CH_3)_3$, $-CH(C_2H_5)-C\equiv C-CH_3$, $-C(CH_3)_2-C\equiv C-CH_3$, $-CH(C_2H_5)-CH_2-C\equiv CH$, $-CH_2-CH(C_2H_5)-C\equiv CH$, $-C(CH_3)_2-CH_2-C\equiv CH$, $-CH_2-C(CH_3)_2-C\equiv CH$, $-CH(CH_3)-CH(CH_3)-C\equiv CH$, $-CH(C_3H_7)-C\equiv CH$, $-C(CH_3)(C_2H_5)-C\equiv CH$, $-C\equiv C-C\equiv CH$, $-CH_2-C\equiv C-C\equiv CH$, $-C\equiv C-C\equiv C-CH_3$, $-CH(C\equiv CH)_2$, $-C_2H_4-C\equiv C-C\equiv CH$, $-CH_2-C\equiv C-CH_2-C\equiv CH$, $-C\equiv C-C_2H_4-C\equiv CH$, $-CH_2-C\equiv C-C\equiv C-CH_3$, $-C\equiv C-CH_2-C\equiv C-CH_3$, $-C\equiv C-C\equiv C-C_2H_5$, $-C\equiv C-CH(CH_3)-C\equiv CH$, $-CH(CH_3)-C\equiv C-C\equiv CH$, $-CH(C\equiv CH)-CH_2-C\equiv CH$, $-C(C\equiv CH)_2-CH_3$, $-CH_2-CH(C\equiv CH)_2$, $-CH(C\equiv CH)-C\equiv C-CH_3$;

m is an integer from1 to 10;
n is an integer from 0 to 5;
p is an integer from 0 to 3;
q is an integer from 0 to 4;
r represents 0 or 1;
s represents 0 or 1;
t is an integer from 1 to 10.

2. Catheter balloon according to claim 1, wherein the at least one antirestenotic agent is embedded or stored in the at least one transport promoting molecular dispersant.

3. Catheter balloon according to claim 1 or 2, wherein the amount ratio of the antirestenotic agent and the at least one transport promoting molecular dispersant is from 90 wt % antirestenotic agent to 10 wt % transport promoting molecular dispersant to 10 wt % antirestenotic agent to 90 wt % transport promoting molecular dispersant.

4. Catheter balloon according to any one of claims 1 – 3, wherein the at least one antirestenotic agent is selected from the group comprising or consisting of: paclitaxel, docetaxel, sirolimus, biolimus A9, zotarolimus, everolimus, myolimus, novolimus, pimecrolimus, tacrolimus, ridaforolimus and temsirolimus.

5. Catheter balloon according to claim 4, wherein the at least one antirestenotic agent is paclitaxel.

6. Catheter balloon according to claim 4, wherein the at least one antirestenotic agent is sirolimus.

7. Catheter balloon according to any one of claims 1 – 6, wherein the compound according to general formula (I) has a boiling point of at least 500°C (at atmospheric pressure).

8. Catheter balloon according to any one of claims 1 – 7, wherein the compound according to general formula (I) contains 7 to 9 oxygen atoms.

9. Catheter balloon according to any one of claims 1 – 8, wherein the compound according to general formula (I) has a molar mass (molecular weight) of at least 500 g/mol.

10. Catheter balloon according to any one of claims 1 – 9, wherein the compound according to general formula (I) has a melting point of above –60°C.

11. Catheter balloon according to any one of claims 1 – 10, wherein the compound according to general formula (I) has a density from 0.95 g/cm^3 to 1.05 g/cm^3.

12. Catheter balloon according to any one of claims 1 – 11, wherein the compound according to general formula (I) has a flash point of above 100°C.

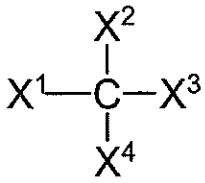
13. Catheter balloon according to any one of claims 1 to 12, wherein the compound according to general formula (I) has a refractive index n_D^{20} between 1.440 and 1.460.

14. Method for the preparation of a catheter balloon according to any one of claims 1 – 13 comprising the steps of:

a) Providing a catheter balloon of a balloon catheter,
b) Providing a coating solution of the at least one antirestenotic agent and the at least one transport promoting molecular dispersant in a solvent or solvent mixture,
c) Coating of the catheter balloon with the coating solution by means of dipping, spreading, spraying, brushing or pipetting procedure.
d) Drying the applied coating.

Claims

1. Catheter balloon with or without crimped stent, wherein the surface of the catheter balloon is coated at least partially with at least one antirestenotic agent and at least one transport promoting molecular dispersant, wherein the at least one transport promoting molecular dispersant is at least one compound of general formula (I):



wherein

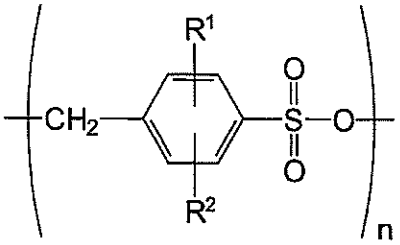
X^1 represents one of the following residues
$-L^1-R^{18}$, $-C(R^3)(R^4)-L^1-R^{18}$, $-L^1-C(R^3)(R^4)-R^{18}$, $-C(R^3)(R^4)-L^1-C(R^5)(R^6)-R^{18}$, $-L^1-Y-R^{18}$, $-Y-L^1-R^{18}$, $-Y-C(R^3)(R^4)-L^1-R^{18}$, $-C(R^3)(R^4)-Y-L^1-R^{18}$, $-C(R^3)(R^4)-L^1-Y-R^{18}$, $-Y-L^1-C(R^3)(R^4)-R^{18}$, $-L^1-Y-C(R^3)(R^4)-R^{18}$, $-L^1-C(R^3)(R^4)-Y-R^{18}$, $-Y-C(R^3)(R^4)-L^1-C(R^5)(R^6)-R^{18}$, $-C(R^3)(R^4)-Y-L^1-C(R^5)(R^6)-R^{18}$, $-C(R^3)(R^4)-L^1-Y-C(R^5)(R^6)-R^{18}$, $-C(R^3)(R^4)-L^1-C(R^5)(R^6)-Y-R^{18}$;

X^2 represents one of the following residues
$-R^7$, $(-CH_2-)_p-R^7$, $(-O-CH_2-)_p-R^7$;

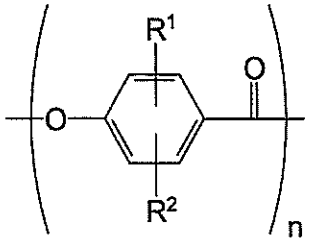
X^3 represents one of the following residues
$-M^1-R^{26}$, $-M^1-M^2-R^{26}$, $-M^1-(M^2)_r-M^3-R^{26}$, $-M^1-(M^2)_r-M^3-(M^4)_s-R^{26}$;

X^4 represents one of the following residues
$-L^2-R^{19}$, $-C(R^{10})(R^{11})-L^2-R^{19}$, $-L^2-C(R^{10})(R^{11})-R^{19}$, $-C(R^{10})(R^{11})-C(R^{12})(R^{13})-L^2-R^{19}$, $-C(R^{10})(R^{11})-L^2-C(R^{12})(R^{13})-R^{19}$, $-L^2-C(R^{10})(R^{11})-C(R^{12})(R^{13})-R^{19}$;

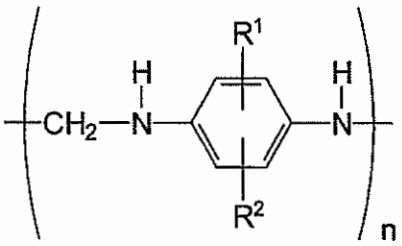
L^1 represents one of the following groups



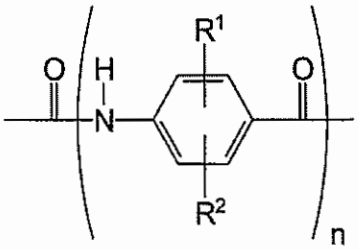
linker 1



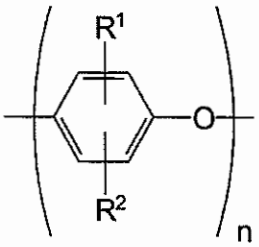
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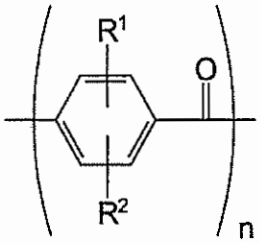
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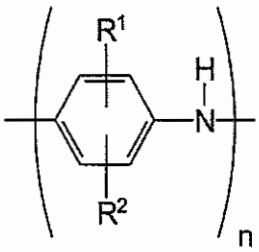
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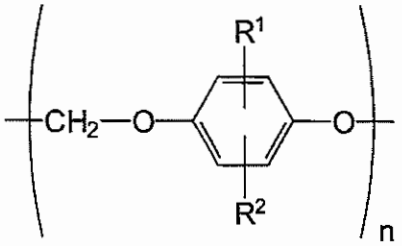
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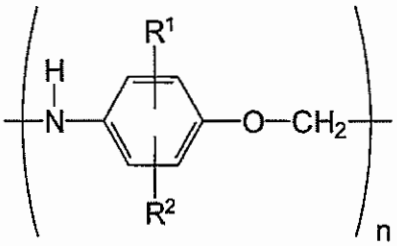
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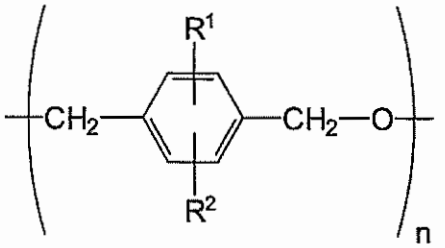
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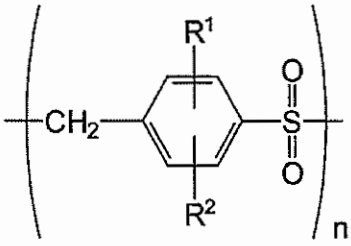
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linker 9



linker 10

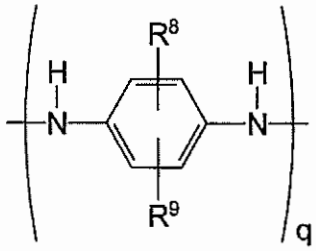


linker 11

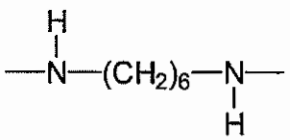
L^2 represents one of the following groups

–O–CO–, –NH–CO–, –CO–, –O–, –NH–, –CO–O–, –CO–NH–, –NH–CO–O–, –O–CO–NH–, –O–CO–O–, –NH–CO–NH–;

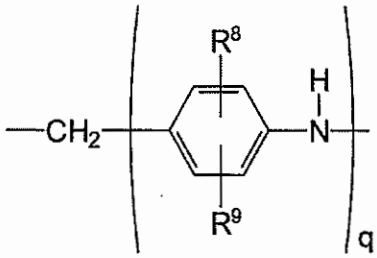
M^1 represents one of the following groups



group 1



group 2



group 3

M^2 represents one of the following groups
$-CH_2-$, $-CH_2-CH_2-$, $-CH_2-CH_2-CH_2-$, $-CH_2-CH_2-CH_2-CH_2-$, $-O-$, $-O-CH_2-$, $-O-CH_2-CH_2-$, $-O-CH_2-CH_2-CH_2-$, $-O-CH_2-CH_2-CH_2-CH_2-$, $-O-CO-$, $-O-CO-CH_2-$, $-O-CO-CH_2-CH_2-$, $-O-CO-CH_2-CH_2-CH_2-$, $-O-CO-CH_2-CH_2-CH_2-CH_2-$, $-CO-$, $-CO-CH_2-$, $-CO-CH_2-CH_2-$, $-CO-CH_2-CH_2-CH_2-$, $-CO-CH_2-CH_2-CH_2-CH_2-$;

M^3 represents one of the following groups
a bond, $-NH-$, $-NH-CO-$, $-NH-CO-NH-$, $-NH-CS-$, $-NH-CS-NH-$, $-NH-C(NH)-NH-$;

M^4 represents one of the following groups
$(-CH_2-O-CH_2-)_t$, $(-O-CH_2-CH_2-)_t$, $(-CH_2-CH_2-O-)_t$;

Y represents $(-CH_2-)_m$, $(-CH_2-O-)_m$, $(-O-CH_2-)_m$, $(-CH_2-CH_2-O-)_m$, or $(-CH_2-CH_2-CH_2-O-)_m$;

R^1 to R^{13} represent independently of each other the following residues: $-R^{14}$ to $-R^{30}$, $-OH$, $-OCH_3$, $-OC_2H_5$, $-OC_3H_7$, $-O-cyclo-C_3H_5$, $-OCH(CH_3)_2$, $-OC(CH_3)_3$, $-OC_4H_9$, $-OPh$, $-OCH_2-Ph$, $-OCPh_3$, $-SH$, $-SCH_3$, $-SC_2H_5$, $-SC_3H_7$, $-S-cyclo-C_3H_5$, $-SCH(CH_3)_2$, $-SC(CH_3)_3$, $-NO_2$, $-F$, $-Cl$, $-Br$, $-I$, $-P(O)(OH)_2$, $-P(O)(OCH_3)_2$, $-P(O)(OC_2H_5)_2$, $-P(O)(OCH(CH_3)_2)_2$, $-C(OH)[P(O)(OH)_2]_2$, $-Si(CH_3)_2(C(CH_3)_3)$, $-Si(C_2H_5)_3$, $-Si(CH_3)_3$, $-N_3$, $-CN$, $-OCN$, $-NCO$, $-SCN$, $-NCS$, $-CHO$, $-COCH_3$, $-COC_2H_5$, $-COC_3H_7$, $-CO-cyclo-C_3H_5$, $-COCH(CH_3)_2$, $-COC(CH_3)_3$, $-COOH$, $-COCN$, $-COOCH_3$, $-COOC_2H_5$, $-COOC_3H_7$, $-COO-cyclo-C_3H_5$, $-COOCH(CH_3)_2$, $-COOC(CH_3)_3$, $-O-CO-R^{14}$, $-CONH_2$, $-CONHCH_3$, $-CONHC_2H_5$, $-CONHC_3H_7$, $-CONH-cyclo-C_3H_5$, $-CONH[CH(CH_3)_2]$, $-CONH[C(CH_3)_3]$, $-CON(CH_3)_2$, $-CON(C_2H_5)_2$, $-CON(C_3H_7)_2$, $-CON(cyclo-C_3H_5)_2$, $-CON[CH(CH_3)_2]_2$, $-CON[C(CH_3)_3]_2$, $-NHCOCH_3$, $-NHCOC_2H_5$, $-NHCOC_3H_7$, $-NHCO-cyclo-C_3H_5$, $-NHCO-CH(CH_3)_2$, $-NHCO-C(CH_3)_3$, $-NHCO-OCH_3$, $-NHCO-OC_2H_5$, $-NHCO-OC_3H_7$, $-NHCO-O-cyclo-C_3H_5$, $-NHCO-OCH(CH_3)_2$, $-NHCO-OC(CH_3)_3$, $-NH_2$, $-NHCH_3$, $-NHC_2H_5$, $-NHC_3H_7$, $-NH-cyclo-C_3H_5$, $-NHCH(CH_3)_2$, $-NHC(CH_3)_3$, $-N(CH_3)_2$, $-N(C_2H_5)_2$, $-N(C_3H_7)_2$, $-N(cyclo-C_3H_5)_2$, $-N[CH(CH_3)_2]_2$, $-N[C(CH_3)_3]_2$, $-SOCH_3$, $-SOC_2H_5$, $-SOC_3H_7$, $-SO-cyclo-C_3H_5$, $-SOCH(CH_3)_2$, $-SOC(CH_3)_3$, $-SO_2CH_3$, $-SO_2C_2H_5$, $-SO_2C_3H_7$, $-SO_2-cyclo-C_3H_5$, $-SO_2CH(CH_3)_2$, $-SO_2C(CH_3)_3$, $-SO_3H$, $-SO_3CH_3$, $-SO_3C_2H_5$, $-SO_3C_3H_7$,

$-SO_3$–cyclo-C_3H_5, $-SO_3CH(CH_3)_2$, $-SO_3C(CH_3)_3$, $-SO_2NH_2$, $-OCF_3$, $-OC_2F_5$, –O–$COOCH_3$, –O–$COOC_2H_5$, –O–$COOC_3H_7$, –O–COO–cyclo-C_3H_5, –O–$COOCH(CH_3)_2$, –O–$COOC(CH_3)_3$, –NH–CO–NH_2, –NH–CO–$NHCH_3$, –NH–CO–NHC_2H_5, –NH–CO–NHC_3H_7, –NH–CO–NH–cyclo-C_3H_5, –NH–CO–NH[$CH(CH_3)_2$], –NH–CO–NH[$C(CH_3)_3$], –NH–CO–$N(CH_3)_2$, –NH–CO–$N(C_2H_5)_2$, –NH–CO–$N(C_3H_7)_2$, –NH–CO–N(cyclo-$C_3H_5)_2$, –NH–CO–N[$CH(CH_3)_2]_2$, –NH–CO–N[$C(CH_3)_3]_2$, –NH–CS–NH_2, –NH–CS–$NHCH_3$, –NH–CS–NHC_2H_5, –NH–CS–NHC_3H_7, –NH–CS–NH–cyclo-C_3H_5, –NH–CS–NH[$CH(CH_3)_2$], –NH–CS–NH[$C(CH_3)_3$], –NH–CS–$N(CH_3)_2$, –NH–CS–$N(C_2H_5)_2$, –NH–CS–$N(C_3H_7)_2$, –NH–CS–N(cyclo-$C_3H_5)_2$, –NH–CS–N[$CH(CH_3)_2]_2$, –NH–CS–N[$C(CH_3)_3]_2$, –NH–C(=NH)–NH_2, –NH–C(=NH)–$NHCH_3$, –NH–C(=NH)–NHC_2H_5, –NH–C(=NH)–NHC_3H_7, –NH–C(=NH)–NH–cyclo-C_3H_5, –NH–C(=NH)–NH[$CH(CH_3)_2$], –NH–C(=NH)–NH[$C(CH_3)_3$], –NH–C(=NH)–$N(CH_3)_2$, –NH–C(=NH)–$N(C_2H_5)_2$, –NH–C(=NH)–$N(C_3H_7)_2$, –NH–C(=NH)–N(cyclo-$C_3H_5)_2$, –NH–C(=NH)–N[$CH(CH_3)_2]_2$, –NH–C(=NH)–N[$C(CH_3)_3]_2$, –O–CO–NH_2, –O–CO–$NHCH_3$, –O–CO–NHC_2H_5, –O–CO–NHC_3H_7, –O–CO–NH–cyclo-C_3H_5, –O–CO–NH[$CH(CH_3)_2$], –O–CO–NH[$C(CH_3)_3$], –O–CO–$N(CH_3)_2$, –O–CO–$N(C_2H_5)_2$, –O–CO–$N(C_3H_7)_2$, –O–CO–N(cyclo-$C_3H_5)_2$, –O–CO–N[$CH(CH_3)_2]_2$, –O–CO–N[$C(CH_3)_3]_2$, –O–CO–OCH_3, –O–CO–OC_2H_5, –O–CO–OC_3H_7, –O–CO–O–cyclo-C_3H_5, –O–CO–$OCH(CH_3)_2$, –O–CO–$OC(CH_3)_3$;

R^{14} to R^{30} represent independently of each other the following residues:
$-CH_2F$, $-CHF_2$, $-CF_3$, $-CH_2Cl$, $-CH_2Br$, $-CH_2I$, $-CH_2-CH_2F$, $-CH_2-CHF_2$, $-CH_2-CF_3$, $-CH_2-CH_2Cl$, $-CH_2-CH_2Br$, $-CH_2-CH_2I$, cyclo-C_3H_5, cyclo-C_4H_7, cyclo-C_5H_9, cyclo-C_6H_{11}, cyclo-C_7H_{13}, cyclo-C_8H_{15}, –Ph, $-CH_2$–Ph, $-CPh_3$, –H, $-CH_3$, $-C_2H_5$, $-C_3H_7$, $-CH(CH_3)_2$, $-C_4H_9$, $-CH_2-CH(CH_3)_2$, $-CH(CH_3)-C_2H_5$, $-C(CH_3)_3$, $-C_5H_{11}$, $-CH(CH_3)-C_3H_7$, $-CH_2-CH(CH_3)-C_2H_5$, $-CH(CH_3)-CH(CH_3)_2$, $-C(CH_3)_2-C_2H_5$, $-CH_2-C(CH_3)_3$, $-CH(C_2H_5)_2$, $-C_2H_4-CH(CH_3)_2$, $-C_6H_{13}$, $-C_7H_{15}$, $-C_8H_{17}$, $-C_3H_6-CH(CH_3)_2$, $-C_2H_4-CH(CH_3)-C_2H_5$, $-CH(CH_3)-C_4H_9$, $-CH_2-CH(CH_3)-C_3H_7$, $-CH(CH_3)-CH_2-CH(CH_3)_2$, $-CH(CH_3)-CH(CH_3)-C_2H_5$, $-CH_2-CH(CH_3)-CH(CH_3)_2$, $-CH_2-C(CH_3)_2-C_2H_5$, $-C(CH_3)_2-C_3H_7$, $-C(CH_3)_2-CH(CH_3)_2$, $-C_2H_4-C(CH_3)_3$, $-CH(CH_3)-C(CH_3)_3$, $-CH=CH_2$, $-CH_2-CH=CH_2$, $-C(CH_3)=CH_2$, $-CH=CH-CH_3$, $-C_2H_4-CH=CH_2$, $-CH_2-CH=CH-CH_3$, $-CH=CH-C_2H_5$, $-CH_2-C(CH_3)=CH_2$, $-CH(CH_3)-CH=CH$, $-CH=C(CH_3)_2$, $-C(CH_3)=CH-CH_3$, $-CH=CH-CH=CH_2$, $-C_3H_6-CH=CH_2$, $-C_2H_4-CH=CH-CH_3$, $-CH_2-CH=CH-C_2H_5$, $-CH=CH-C_3H_7$, $-CH_2-CH=CH-CH=CH_2$,

–CH=CH–CH=CH–CH_3, –CH=CH–CH_2–CH=CH_2, –C(CH_3)=CH–CH=CH_2, –CH=C(CH_3)–CH=CH_2, –CH=CH–C(CH_3)=CH_2, –C_2H_4–C(CH_3)=CH_2, –CH_2–CH(CH_3)–CH=CH_2, –CH(CH_3)–CH_2–CH=CH_2, –CH_2–CH=C(CH_3)$_2$, –CH_2–C(CH_3)=CH–CH_3, –CH(CH_3)–CH=CH–CH_3, –CH=CH–CH(CH_3)$_2$, –CH=C(CH_3)–C_2H_5, –C(CH_3)=CH–C_2H_5, –C(CH_3)=C(CH_3)$_2$, –C(CH_3)$_2$–CH=CH_2, –CH(CH_3)–C(CH_3)=CH_2, –C(CH_3)=CH–CH=CH_2, –CH=C(CH_3)–CH=CH_2, –CH=CH–C(CH_3)=CH_2, –C_4H_8–CH=CH_2, –C_3H_6–CH=CH–CH_3, –C_2H_4–CH=CH–C_2H_5, –CH_2–CH=CH–C_3H_7, –CH=CH–C_4H_9, –C_3H_6–C(CH_3)=CH_2, –C_2H_4–CH(CH_3)–CH=CH_2, –CH_2–CH(CH_3)–CH_2–CH=CH_2, –CH(CH_3)–C_2H_4–CH=CH_2, –C_2H_4–CH=C(CH_3)$_2$, –C_2H_4–C(CH_3)=CH–CH_3, –CH_2–CH(CH_3)–CH=CH–CH_3, –CH(CH_3)–CH_2–CH=CH–CH_3, –CH_2–CH=CH–CH(CH_3)$_2$, –CH_2–CH=C(CH_3)–C_2H_5, –CH_2–C(CH_3)=CH–C_2H_5, –CH(CH_3)–CH=CH–C_2H_5, –CH=CH–CH_2–CH(CH_3)$_2$, –CH=CH–CH(CH_3)–C_2H_5, –CH=C(CH_3)–C_3H_7, –C(CH_3)=CH–C_3H_7, –CH_2–CH(CH_3)–C(CH_3)=CH_2, –CH(CH_3)–CH_2–C(CH_3)=CH_2, –CH(CH_3)–CH(CH_3)–CH=CH_2, –CH_2–C(CH_3)$_2$–CH=CH_2, –C(CH_3)$_2$–CH_2–CH=CH_2, –CH_2–C(CH_3)=C(CH_3)$_2$, –CH(CH_3)–CH=C(CH_3)$_2$, –C(CH_3)$_2$–CH=CH–CH_3, –CH(CH_3)–C(CH_3)=CH–CH_3, –CH=C(CH_3)–CH(CH_3)$_2$, –C(CH_3)=CH–CH(CH_3)$_2$, –C(CH_3)=C(CH_3)–C_2H_5, –CH=CH–C(CH_3)$_3$, –C(CH_3)$_2$–C(CH_3)=CH_2, –CH(C_2H_5)–C(CH_3)=CH_2, –C(CH_3)(C_2H_5)–CH=CH_2, –CH(CH_3)–C(C_2H_5)=CH_2, –CH_2–C(C_3H_7)=CH_2, –CH_2–C(C_2H_5)=CH–CH_3, –CH(C_2H_5)–CH=CH–CH_3, –C(C_4H_9)=CH_2, –C(C_3H_7)=CH–CH_3, –C(C_2H_5)=CH–C_2H_5, –C(C_2H_5)=C(CH_3)$_2$, –C[C(CH_3)$_3$]=CH_2, –C[CH(CH_3)(C_2H_5)]=CH_2, –C[CH_2–CH(CH_3)$_2$]=CH_2, –C_2H_4–CH=CH–CH=CH_2, –CH_2–CH=CH–CH_2–CH=CH_2, –CH=CH–C_2H_4–CH=CH_2, –CH_2–CH=CH–CH=CH–CH_3, –CH=CH–CH_2–CH=CH–CH_3, –CH=CH–CH=CH–C_2H_5, –CH_2–CH=CH–C(CH_3)=CH_2, –CH_2–CH=C(CH_3)–CH=CH_2, –CH_2–C(CH_3)=CH–CH=CH_2, –CH(CH_3)–CH=CH–CH=CH_2, –CH=CH–CH_2–C(CH_3)=CH_2, –CH=CH–CH(CH_3)–CH=CH_2, –CH=C(CH_3)–CH_2–CH=CH_2, –C(CH_3)=CH–CH_2–CH=CH_2, –CH=CH–CH=C(CH_3)$_2$, –CH=CH–C(CH_3)=CH–CH_3, –CH=C(CH_3)–CH=CH–CH_3, –C(CH_3)=CH–CH=CH–CH_3, –CH=C(CH_3)–C(CH_3)=CH_2, –C(CH_3)=CH–C(CH_3)=CH_2, –C(CH_3)=C(CH_3)–CH=CH_2, –CH=CH–CH=CH–CH=CH_2, –C≡CH, –C≡C–CH_3, –CH_2-C≡CH, –C_2H_4–C≡CH, –CH_2–C≡C–CH_3, –C≡C–C_2H_5, –C_3H_6–C≡CH, –C_2H_4–C≡C–CH_3, –CH_2–C≡C–C_2H_5, –C≡C–C_3H_7, –CH(CH_3)–C≡CH, –CH_2–CH(CH_3)–C≡CH, –CH(CH_3)–CH_2–C≡CH, –CH(CH_3)–C≡C–CH_3, –C_4H_8–C≡CH, –C_3H_6–C≡C–CH_3, –C_2H_4–C≡C–C_2H_5, –CH_2–C≡C–C_3H_7, –C≡C–C_4H_9, –C_2H_4–CH(CH_3)–C≡CH, –CH_2–CH(CH_3)–CH_2–C≡CH, –CH(CH_3)–C_2H_4–C≡CH, –CH_2–CH(CH_3)–C≡C–CH_3, –CH(CH_3)–CH_2–C≡C–CH_3,

$-CH(CH_3)-C\equiv C-C_2H_5$, $-CH_2-C\equiv C-CH(CH_3)_2$, $-C\equiv C-CH(CH_3)-C_2H_5$, $-C\equiv C-CH_2-CH(CH_3)_2$, $-C\equiv C-C(CH_3)_3$, $-CH(C_2H_5)-C\equiv C-CH_3$, $-C(CH_3)_2-C\equiv C-CH_3$, $-CH(C_2H_5)-CH_2-C\equiv CH$, $-CH_2-CH(C_2H_5)-C\equiv CH$, $-C(CH_3)_2-CH_2-C\equiv CH$, $-CH_2-C(CH_3)_2-C\equiv CH$, $-CH(CH_3)-CH(CH_3)-C\equiv CH$, $-CH(C_3H_7)-C\equiv CH$, $-C(CH_3)(C_2H_5)-C\equiv CH$, $-C\equiv C-C\equiv CH$, $-CH_2-C\equiv C-C\equiv CH$, $-C\equiv C-C\equiv C-CH_3$, $-CH(C\equiv CH)_2$, $-C_2H_4-C\equiv C-C\equiv CH$, $-CH_2-C\equiv C-CH_2-C\equiv CH$, $-C\equiv C-C_2H_4-C\equiv CH$, $-CH_2-C\equiv C-C\equiv C-CH_3$, $-C\equiv C-CH_2-C\equiv C-CH_3$, $-C\equiv C-C\equiv C-C_2H_5$, $-C\equiv C-CH(CH_3)-C\equiv CH$, $-CH(CH_3)-C\equiv C-C\equiv CH$, $-CH(C\equiv CH)-CH_2-C\equiv CH$, $-C(C\equiv CH)_2-CH_3$, $-CH_2-CH(C\equiv CH)_2$, $-CH(C\equiv CH)-C\equiv C-CH_3$;

m is an integer from1 to 10;

n is an integer from 0 to 5;

p is an integer from 0 to 3;

q is an integer from 0 to 4;

r represents 0 or 1;

s represents 0 or 1;

t is an integer from 1 to 10.

2. Catheter balloon according to claim 1, wherein the at least one antirestenotic agent is embedded or stored in the at least one transport promoting molecular dispersant.

3. Catheter balloon according to claim 1 or 2, wherein the amount ratio of the antirestenotic agent and the at least one transport promoting molecular dispersant is from 90 wt % antirestenotic agent to 10 wt % transport promoting molecular dispersant to 10 wt % antirestenotic agent to 90 wt % transport promoting molecular dispersant.

4. Catheter balloon according to any one of claims 1 – 3, wherein the at least one antirestenotic agent is selected from the group comprising or consisting of: paclitaxel, docetaxel, sirolimus, biolimus A9, zotarolimus, everolimus, myolimus, novolimus, pimecrolimus, tacrolimus, ridaforolimus and temsirolimus.

5. Catheter balloon according to claim 4, wherein the at least one antirestenotic agent is paclitaxel.

6. Catheter balloon according to claim 4, wherein the at least one antirestenotic agent is sirolimus.

7. Catheter balloon according to any one of claims 1 – 6, wherein the compound according to general formula (I) has a boiling point of at least 500°C (at atmospheric pressure).

8. Catheter balloon according to any one of claims 1 – 7, wherein the compound according to general formula (I) contains 7 to 9 oxygen atoms.

9. Catheter balloon according to any one of claims 1 – 8, wherein the compound according to general formula (I) has a molar mass (molecular weight) of at least 500 g/mol.

10. Catheter balloon according to any one of claims 1 – 9, wherein the compound according to general formula (I) has a melting point of above –60°C.

11. Catheter balloon according to any one of claims 1 – 10, wherein the compound according to general formula (I) has a density from 0.95 g/cm^3 to 1.05 g/cm^3.

12. Catheter balloon according to any one of claims 1 – 11, wherein the compound according to general formula (I) has a flash point of above 100°C.

13. Catheter balloon according to any one of claims 1 to 12, wherein the compound according to general formula (I) has a refractive index n_D^{20} between 1.440 and 1.460.

14. Method for the preparation of a catheter balloon according to any one of claims 1 – 13 comprising the steps of:
    a) Providing a catheter balloon of a balloon catheter,
    b) Providing a coating solution of the at least one antirestenotic agent and the at least one transport promoting molecular dispersant in a solvent or solvent mixture,
    c) Coating of the catheter balloon with the coating solution by means of dipping, spreading, spraying, brushing or pipetting procedure.
    d) Drying the applied coating.