Operation 1: Six-membered ring/ five membered ring exchange

[#6,#7:1][C:2]c1ccc([C:3][#6,#7:4])cc1>>[#6,#7:1][C:2]c1sc([C:3][#6,#7:4])cc1

[#6,#7:1][C:2]c1ccc([C:3][#6,#7:4])cc1>>[#6,#7:1][C:2]c1scc([C:3][#6,#7:4])c1

Operation 2: Ring linkage

[c&r5,c&r6:1][C:2][#7:3]>>[#6:1](-[c]1[ch]cc([#6:2][#7:3])c[ch]1)

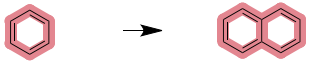
[c&r5,c&r6:1][C:2][#7:3]>>[#6:1]c1csc([C:2][#7:3])c1

[c&r5,c&r6:1][C:2][#7:3]>>[#6:1]c1sc([C:2][#7:3])cc1

Operation 3: Ring fusion

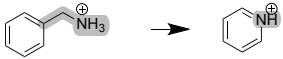
[cH:1][c:2][C:3][NH3+:4]>>[c:1]2ccc([C:3][NH3+:4])c[c:2]2

[cH:1][c:2][C:3][NH3+:4]>>[c:1]2sc([C:3][NH3+:4])c[c:2]2



Operation 4: Primary amine/secondary amine exchange

[c:1][C][NH3+]>>[nH+:1]

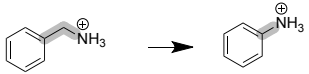


Operation 5: Linker length increase

[#6:1][CH2:2][NH3+:3]>>[#6:1][CH2:2][CH2][NH3+:3]

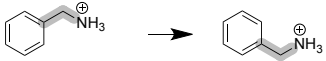
Operation 6: Linker length decrease

[#6:1][CH2][NH3+]>>[#6:1][NH3+]



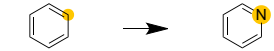
Operation 7: Linker position change

[cH:1][c:2][C:3]>>[cH:2][c:1][C:3]



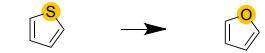
Operation 8: Heteronitrogen substitution

[cH:1]>>[n:1]



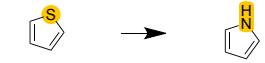
Operation 9: Furan exchange

[c&r5:1][s&r5][c&r5:2]>>[c&r5:1][o&r5][c&r5:2]



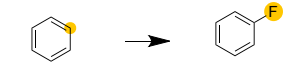
Operation 10: Pyrrole exchange

[s&r5:1]>>[nH:1]



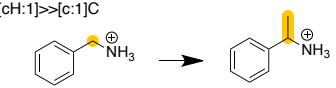
Operation 11: Fluorination

[cH&r6:1]>>[c:1][F]



Operation 12: Side chain on backbone

[cH:1]>>[c:1]C



Operation 13: Side chain on linker

[#6,#7:1][CH2:2][#6,#7:3]>>[#6,#7:1][CH:2](C)[#6,#7:3]