0 humansec 16.40 kcal**/**mol 0.83

1 humansec **+** T87K 15.61 kcal**/**mol 0.69

2 humansec **+** T87K + A47S 14.42 kcal**/**mol 0.69

3 humansec **+** T87K + A47S **+** S143E 14.53 kcal**/**mol 0.61

4 humansec **+** T87K + A47S **+** S143E + A60T 16.14 kcal**/**mol 0.63

5 humansec **+** T87K + A47S **+** S143E + A60T + F104Y 15.43 kcal**/**mol 0.62

6 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P 14.27 kcal**/**mol 0.56

7 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F 14.07 kcal**/**mol 0.60

8 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R 13.14 kcal**/**mol 0.37

9 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R + A52T 13.16 kcal/mol 0.37

10 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R + A52T + Y48F 12.92 kcal/mol 0.61

11 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R + A52T + Y48F + Q144H 14.28 kcal/mol 0.71

12 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R + A52T + Y48F + Q144H + Q54T 12.13 kcal/mol 0.48

13 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R + A52T + Y48F + Q144H + Q54T + Q177H 13.07 kcal/mol 0.42

14 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R + A52T + Y48F + Q144H + Q54T + Q177H + S102G 13.80 kcal/mol 0.46

15 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R + A52T + Y48F + Q144H + Q54T + Q177H + S102G + L24I 13.93 kcal/mol 0.73

16 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R + A52T + Y48F + Q144H + Q54T + Q177H + S102G + L24I + N3K 12.92 kcal/mol 0.55

17 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R + A52T + Y48F + Q144H + Q54T + Q177H + S102G + L24I + N3K + H173R 12.86 kcal/mol 0.91

18 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R + A52T + Y48F + Q144H + Q54T + Q177H + S102G + L24I + N3K + H173R + A178T 14.12 kcal/mol 0.63

19 humansec **+** T87K + A47S **+** S143E + A60T + F104Y + S142P + L139F + S181R + A52T + Y48F + Q144H + Q54T + Q177H + S102G + L24I + N3K + H173R + A178T + A74G 14.05 kcal/mol 0.69

0 mousecys 17.68 kcal**/**mol 0.91

1 mousecys **+** T54Q 14.62 kcal**/**mol 0.68

2 mousecys **+** T54Q **+** mousesec 14.84 kcal**/**mol 0.52

3 mousesec **+** T54Q **+** I24L 14.06 kcal**/**mol 0.61

4 mousesec **+** T54Q **+** I24L **+** F139L 15.42 kcal**/**mol 0.85

5 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A 14.35 kcal**/**mol 0.55

6 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A 14.37 kcal**/**mol 0.75

7 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A 12.98 kcal**/**mol 0.59

8 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q 13.57 kcal**/**mol 0.38

9 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C 13.84 kcal**/**mol 0.59

10 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C **+** H177Q 13.69 kcal**/**mol 0.72

11 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C **+** H177Q **+** T178A 13.45 kcal**/**mol 0.63

12 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C **+** H177Q **+** T178A **+** Y104F 14.37 kcal**/**mol 0.98

13 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C **+** H177Q **+** T178A **+** Y104F **+** S4R 13.90 kcal**/**mol 0.48

14 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C **+** H177Q **+** T178A **+** Y104F **+** S4R **+** T52A 14.25 kcal**/**mol 0.60

15 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C **+** H177Q **+** T178A **+** Y104F **+** S4R **+** T52A **+** K87T 15.13 kcal**/**mol 0.86

16 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C **+** H177Q **+** T178A **+** Y104F **+** S4R **+** T52A **+** K87T **+** G102S 14.21 kcal**/**mol 0.85

17 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C **+** H177Q **+** T178A **+** Y104F **+** S4R **+** T52A **+** K87T **+** G102S **+** N107S 12.94 kcal**/**mol 0.60

18 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C **+** H177Q **+** T178A **+** Y104F **+** S4R **+** T52A **+** K87T **+** G102S **+** N107S **+** P142S 13.07 kcal**/**mol 0.60

19 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C **+** H177Q **+** T178A **+** Y104F **+** S4R **+** T52A **+** K87T **+** G102S **+** N107S **+** P142S **+** R181S 13.69 kcal**/**mol 0.61

20 mousesec **+** T54Q **+** I24L **+** F139L **+** S47A **+** T60A **+** G74A **+** H144Q **+** R99C **+** H177Q **+** T178A **+** Y104F **+** S4R **+** T52A **+** K87T **+** G102S **+** N107S **+** P142S **+** R181S **+** F48Y 13.90 kcal**/**mol 0.73