

#	CC / NC	Reaction
Cabibbo-allowed quasi-elastic scattering from nucleons		
1	CC	$\nu_{\mu}n \rightarrow \mu^{-}p$ ($\bar{\nu}_{\mu}p \rightarrow \mu^{+}n$)
(Quasi-)elastic scattering from nucleons		
2	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}n$ ($\bar{\nu}_{\mu}n \rightarrow \bar{\nu}_{\mu}n$) $\nu_{\mu}p \rightarrow \nu_{\mu}p$ ($\bar{\nu}_{\mu}p \rightarrow \bar{\nu}_{\mu}p$)
Resonant single pion production		
3	CC	$\nu_{\mu}p \rightarrow \mu^{-}p\pi^{+}$
4	CC	$\nu_{\mu}n \rightarrow \mu^{-}p\pi^{0}$
5	CC	$\nu_{\mu}n \rightarrow \mu^{-}n\pi^{+}$
6	NC	$\nu_{\mu}p \rightarrow \nu_{\mu}p\pi^{0}$
7	NC	$\nu_{\mu}p \rightarrow \nu_{\mu}n\pi^{+}$
8	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}n\pi^{0}$
9	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}p\pi^{-}$
10-16		Corresponding $\bar{\nu}_{\mu}$ processes
Multi-pion resonant processes		
17	CC	$\nu_{\mu}p \rightarrow \mu^{-}\Delta^{+}\pi^{+}$
18	CC	$\nu_{\mu}p \rightarrow \mu^{-}\Delta^{++}\pi^{0}$
19	CC	$\nu_{\mu}n \rightarrow \mu^{-}\Delta^{+}\pi^{0}$
20	CC	$\nu_{\mu}n \rightarrow \mu^{-}\Delta^{0}\pi^{+}$
21	CC	$\nu_{\mu}n \rightarrow \mu^{-}\Delta^{++}\pi^{-}$
22	NC	$\nu_{\mu}p \rightarrow \nu_{\mu}\Delta^{+}\pi^{0}$
23	NC	$\nu_{\mu}p \rightarrow \nu_{\mu}\Delta^{0}\pi^{+}$
24	NC	$\nu_{\mu}p \rightarrow \nu_{\mu}\Delta^{++}\pi^{-}$

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25	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}\Delta^{+}\pi^{-}$
26	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}\Delta^{0}\pi^{0}$
27	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}\Delta^{-}\pi^{+}$
28-38		Corresponding $\bar{\nu}_{\mu}$ processes
39	CC	$\nu_{\mu}p \rightarrow \mu^{-}p\rho^{+}(770)$
40	CC	$\nu_{\mu}n \rightarrow \mu^{-}p\rho^{0}(770)$
41	CC	$\nu_{\mu}n \rightarrow \mu^{-}n\rho^{+}(770)$
42	NC	$\nu_{\mu}p \rightarrow \nu_{\mu}p\rho^{0}(770)$
43	NC	$\nu_{\mu}p \rightarrow \nu_{\mu}n\rho^{+}(770)$
44	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}n\rho^{0}(770)$
45	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}p\rho^{-}(770)$
46-52		Corresponding $\bar{\nu}_{\mu}$ processes
53	CC	$\nu_{\mu}p \rightarrow \mu^{-}\Sigma^{+}K^{+}$
54	CC	$\nu_{\mu}n \rightarrow \mu^{-}\Sigma^{0}K^{+}$
55	CC	$\nu_{\mu}n \rightarrow \mu^{-}\Sigma^{+}K^{0}$
56	NC	$\nu_{\mu}p \rightarrow \nu_{\mu}\Sigma^{0}K^{+}$
57	NC	$\nu_{\mu}p \rightarrow \nu_{\mu}\Sigma^{+}K^{0}$
58	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}\Sigma^{0}K^{0}$
59	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}\Sigma^{-}K^{+}$
60-66		Corresponding $\bar{\nu}_{\mu}$ processes
67	CC	$\nu_{\mu}n \rightarrow \mu^{-}p\eta$
68	NC	$\nu_{\mu}p \rightarrow \nu_{\mu}p\eta$
69	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}n\eta$
70-72		Corresponding $\bar{\nu}_{\mu}$ processes
73	CC	$\nu_{\mu}n \rightarrow \mu^{-}K^{+}\Lambda$
74	NC	$\nu_{\mu}p \rightarrow \nu_{\mu}K^{+}\Lambda$
75	NC	$\nu_{\mu}n \rightarrow \nu_{\mu}K^{0}\Lambda$

#	CC / NC	Reaction
76–78		Corresponding $\bar{\nu}_\mu$ processes
79	CC	$\nu_\mu n \rightarrow \mu^- p \pi^+ \pi^-$
80	CC	$\nu_\mu n \rightarrow \mu^- p \pi^0 \pi^0$
81	NC	$\nu_\mu p \rightarrow \nu_\mu p \pi^+ \pi^-$
82	NC	$\nu_\mu p \rightarrow \nu_\mu p \pi^0 \pi^0$
83	NC	$\nu_\mu n \rightarrow \nu_\mu n \pi^+ \pi^-$
84	NC	$\nu_\mu n \rightarrow \nu_\mu n \pi^0 \pi^0$
85–90		Corresponding $\bar{\nu}_\mu$ processes
Deep Inelastic Scattering		
91	CC	$\nu_\mu N \rightarrow \mu X$
92	NC	$\nu_\mu N \rightarrow \nu_\mu X$
93–94		Unused
95	CC	Cabibbo–supp. QE hyperon production: $\bar{\nu}_\mu p \rightarrow \mu^+ \Lambda$ $\bar{\nu}_\mu n \rightarrow \mu^+ \Sigma^-$ $\bar{\nu}_\mu p \rightarrow \mu^+ \Sigma^0$

#	CC / NC	Reaction
Coherent / diffractive π production		
96	NC	$\nu_\mu A \rightarrow \nu_\mu A \pi^0$ ($\bar{\nu}_\mu A \rightarrow \bar{\nu}_\mu A \pi^0$)
97	CC	$\nu_\mu A \rightarrow \mu^- A \pi^+$ ($\bar{\nu}_\mu A \rightarrow \mu^+ A \pi^-$)
ν -e elastic scattering		
98	-	$\nu_\mu e \rightarrow \nu_\mu e$ ($\bar{\nu}_\mu e \rightarrow \bar{\nu}_\mu e$)
ν -e inverse μ decay		
99	CC	$\nu_\mu e \rightarrow \mu^- \nu_e$

Table 1: Processes available with NUANCE. The numbers in the leftmost column indicate the assigned reaction code in NUANCE.