

**Table 1.** Genes whose expression changes as a function of pH.

Gene/Protein	Process/Function	Organism	Reference
<i>aceF</i>	Dihydropyrimidine acetyltransferase	<i>E. coli</i>	Heyde and Portallier (1990); Hickey and Hirshfield (1990)
<i>adi</i>	Arginine decarboxylase	<i>E. coli</i>	Auger <i>et al.</i> (1989); Tabor and Tabor (1985)
<i>alk</i>	?, induced by alkaline pH	<i>E. coli</i>	Bingham <i>et al.</i> (1990)
<i>cadA, cadB</i>	Lysine decarboxylase, lysine/cadaverine antiporter	<i>E. coli</i>	Auger and Bennett (1989); Auger <i>et al.</i> (1989); Meng and Bennett (1992a,b); Tabor and Tabor (1985); Watson <i>et al.</i> (1992)
<i>cydAB</i>	Cytochrome d oxidase	<i>E. coli</i>	Cotter <i>et al.</i> (1990)
<i>cyoABCDE</i>	Cytochrome o oxidase	<i>E. coli</i>	Cotter <i>et al.</i> (1990)
<i>groEL, dnaK, htpG, htpM, grpE</i>	Stress proteins	<i>E. coli, S. typhimurium</i>	Abshire (1991); Foster (1991); Heyde and Portallier (1990); Taglicht <i>et al.</i> (1987)
<i>inaA</i>	?, induced by membrane-permeable weak acids	<i>E. coli</i>	Slonczewski <i>et al.</i> (1987); White <i>et al.</i> (1992)
<i>lamB</i>	Maltose transport	<i>E. coli</i>	Heyde and Portallier (1987)
<i>lysU</i>	Lysyl-tRNA synthetase	<i>E. coli</i>	Hickey and Hirshfield (1990); Hirshfield <i>et al.</i> (1984); Lévêque <i>et al.</i> (1991)
<i>lysP (cadR)</i>	Lysine permease	<i>E. coli</i>	Steffes <i>et al.</i> (1992)
<i>malE</i>	Maltose-binding protein	<i>E. coli</i>	Heyde <i>et al.</i> (1991)
<i>nhaA</i>	Na <sup>+</sup> /H <sup>+</sup> antiporter	<i>E. coli</i>	Karpel <i>et al.</i> (1991); Pinner <i>et al.</i> (1992); Rahav-Manor <i>et al.</i> (1992)
<i>ompF, ompC</i>	Porins	<i>E. coli, S. typhimurium</i>	Foster and Hall (1990); Heyde <i>et al.</i> (1991); Heyde <i>et al.</i> (1988); Heyde and Portallier (1987)
<i>polA</i>	DNA polymerase I	<i>E. coli</i>	Hickey and Hirshfield (1990)
<i>speF</i>	Ornithine decarboxylase	<i>E. coli</i>	Kashiwagi <i>et al.</i> (1991); Tabor and Tabor (1985)
Proteins on 2-D gels observed by various low pH treatments	?, some involved in adaptation	<i>E. coli, S. typhimurium</i>	Abshire (1991); Foster (1991); Foster and Hall (1990); Hassani <i>et al.</i> (1991); Heyde and Portallier (1990); Hickey and Hirshfield (1990)
Random <i>phm::phoA</i> gene fusions	?	<i>E. coli</i>	Heyde <i>et al.</i> (1991)
SOS genes	DNA repair	<i>E. coli</i>	Schuldiner <i>et al.</i> (1986)
<i>aniG</i>	?, co-induced by external acid and mannose	<i>S. typhimurium</i>	Aliabadi <i>et al.</i> (1988); Foster and Aliabadi (1989)
<i>pag</i> genes	Virulence factors, macrophage survival	<i>S. typhimurium</i>	S. I. Miller, personal communication; S. I. Miller (1991); Abshire (1991)
<i>vir</i> genes	Bacterial-host interactions	<i>A. tumefaciens</i>	Chen and Winans (1991); Mantis and Winans (1992a); Mantis and Winans (1992b); Stachel <i>et al.</i> (1986); Turk <i>et al.</i> (1991); Winans (1990); Winans (1992)
Acid-induced proteins observed on gels	?	<i>A. tumefaciens</i>	Mantis and Winans (1992a)
<i>nodA, nodF</i>	Nodulation	<i>R. leguminosarum</i> biovar <i>trifolii</i>	Richardson <i>et al.</i> (1988)
<i>hrp</i> genes	Pathogenic response on plants	<i>P. syringae</i> pv. <i>phaseolicola</i> , <i>E. amylovora</i>	Rahme <i>et al.</i> (1992); Wei <i>et al.</i> (1992)
ToxR regulon	Virulence factors	<i>V. cholerae</i>	DiRita (1992); DiRita <i>et al.</i> (1991); Mekalanos (1992); V. L. Miller <i>et al.</i> (1987); Parsot and Mekalanos (1991)
<i>menCD</i>	Menaquinone synthesis	<i>B. subtilis</i>	Hill <i>et al.</i> (1990)
<i>agr</i> and Agr-regulated genes	Regulation of exoprotein synthesis	<i>S. aureus</i>	Regassa and Betley (1992)
Arginine deiminase	Arginine catabolism	Streptococci	Burne <i>et al.</i> (1991); Cunin <i>et al.</i> (1986)
H <sup>+</sup> -ATPase	ATP synthesis/hydrolysis	<i>E. faecalis</i>	Kobayashi <i>et al.</i> (1986)
Metabolic switch from acidogenic to solventogenic fermentation	Production of butanol	<i>C. acetobutylicum</i>	Rogers (1986)

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