

Identification of *Aspergillus niger* aquaporins involved in hydrogen peroxide signaling

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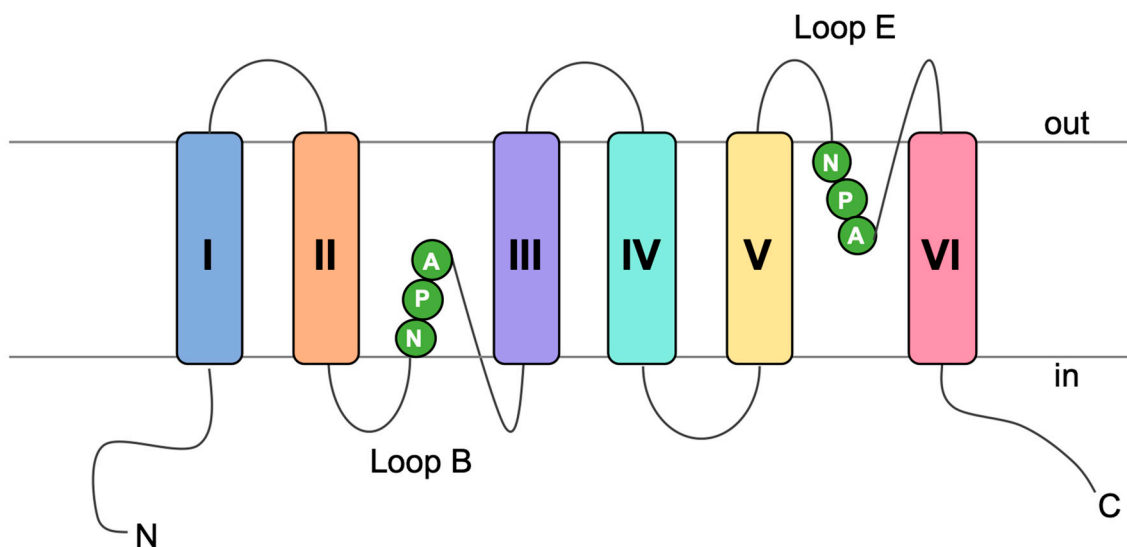
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Dataset S1: *A. niger* AQPs sequences and domain identification

- **AQP Conserved structural features.** Loop B and E contain conserved motifs important for AQP classification. Picture adapted from Kruse et al., 2006.



- **AQP amino acid sequence annotation**

- Transmembrane domains I to VI are coloured as indicated above.
- Cysteine residues are indicated in bold.
- NPA motifs in loop B and E are indicated in green and bold.
- Conserved sequences in loop B and E are underlined.

>**AQPA**_ATCC64974_2160 (5 transmembrane domains)

MGPQQWFRKRNPDSQTAPMYRSSNNQLPMLHLADTTRNN**FIAAVGEFVGTFLEFLFFSFA**GTQVSNTPKPAPGSP
NTSNLLYSSL**CF**GFSLMVNVWAFYR**VTGGLFNP**AVTLAL**CLVGG**LSPIRG**VILFGVQLIAGIASAGVVGAL**FP
LNVGTRLGGGASISQ**GLFIEVFLTAQLVFIIIMLAV**VKHKST**FLAPVGIGLVFFVTEMVG**DYYT**GGS**L**NP**ARSLG
PDVINRSFPGYHWIY**WVGPLLGSLLACGFFTF**LKMFQYTTVNPQGQDYNE

>**AQPB**_ATCC64974_25380

MVHPVRSNLKELDQVDTESRGYRSSDTTEGGSSKVEDGDEPIEETSRRGVSRNKSHTGTQRTNFSRNKSHASHRTG
VSQNQSYRSQPPATLRNQSYGSQAQFSLAGPNAYYGLPQQGAYMHPEYQSFNPQYGNMQGDKPVWSLAQPLPHV
VRDGMRYGALPEDRKEERDEDEGRERPPPASEEPPTDIPKTDEARENGEEPQNEMGFFNKWSKIRYYLREP**LGEWL**
GTTIAITLGLCGGLSTYTSQGAGSWMTQSA**CWGF****SFMIGIYIVGGISGGHLNP**AITISMSLWRGFPARR**CVIYI**
LAQLIGAITAGGFAYAIYHDAIVNLSVETNLPQSETTASQAFLTLPKQFVSP**ATAFFNEFLGTAILVGTIMALGD**
DTNAPPGAGMQ**AFIIGILITVLVLALGYNTGGA**FNPRDFGPRLVAVMAGWGHLFKEYHAWWIWGP**WVADIFGG**
LFGAFIYDLVVFTGGESPINYPPIRRKRALLIKEKNLRSKLRFGRRKIGDIERAVEENQD

>**AQPC**_ATCC64974_26080 (5 transmembrane domains)

MAGLLFRPQNDIDPSVNVQQLS**CK**PHVQPFVGRIGGNQGVLDLRADPDNAEYLRKVPDAAPLMSARDAFNVRGFT
DLDLWR**FAVVE****CVGTMMLAFITAWAA**ATPAN**V**APPSPSTPAGIFATTAFLGP**LVGAVTNWLLLTLFIFSFSS**VSG
SHL**NP**TITLATFFARLISLPR**MLVLYLCGQILGGALAGWML**QSAFGSGQYSVGG**CV**VDLTALVPVREA**FVLEFICSL**
TLIFLSFGVGLDPRQVR**VYGAALSPWL**VGMVL**GAVSLGSA**YTREGYGGAC**VL**FFYTTLTSK**CS**V**PSE****C**PEANFRFQ
R

>**AQPD**_ATCC64974_52260

MFLNTGLSRKFLKPYVAE**FLGTALLIVIGDGVVAQCL**LSDYQYGTW**LSINIAWAAAVCISGYLS**DPGPTIN**PAVT**
I**CMALVRPTPGQWRKLP**GP**KLFAQFLGGFVGAAIVYIN**YRSAIKDWDPEFTIPGGSILSPRGHHSAGIFSTYPAAF
FESNWEAAFSSELLGSAVLMFGILSISDPVNAVRFHSPQV**TVFFLLTAIGAALGWQTGYAIN**PARDFGPRLFSAFI
YGREVFATAANY**YFVVP**IFAPIVG**CVVGAATY**DTFLYEGDGSRTDALDNVEDRDGALRLH

>**AQPE**_ATCC64974_71680

MDDGETRRPRATSDAISPRGENPPTSPLSPTRGRRGTAGDADFVSPTRRVSGRDGSGAGVRRRSSAASRRSGGSG
IPSLAPRTTLAGRTQGRFTMAGPEETPQLRLAHEFPVQPGYGD**LNPS**YEQPANSPVWGLAKPLPRVVRPGMVPT
KEELLEARNQNIQLPAENSQKLGLEVPNDLELGQIEKTADPRKMAAQVEDARIQRENNFMNKILSGDATTTTRQGS
RLSRTSSSRIRRPASAWDLPPENLSTVPEGETPAPSETHEEPPQMSSEEPLEPVLEEPELRADDGKDGMMDDLPLN
EEIEAAYPEDLHPLVQELVEEEVHNHTTWSVIRTHHREALAES**LGVFVQLFVGFCGDLAVTV**ANAGNPNTTDWV
WGFAT**MAIYVSGGVSGAHLNP**TITIM**W**YRGFPKSKMPEY**FAAQFLGAFIAALAAAYGLY**YHSIQHYLLTNSTT
GIITSFVTSQRETWIGP**GTAFFTEFLGTMILTVVVLALG**DDQNAPPGAGMN**SLIVGLMVT****CNTMSFAYQTGAALN**
PSRDFGPRLALLALGYGSSLFTNPYWFY**GPWAGSLAGSFLGAFLYDFMIFTGG**ESPVNYPWERTQRAMRKSRMKW
GKRLHLSRRDRGEKTVR

>**AQPF**_ATCC64974_75350

MVVTYLPYYESDETHPQHHLGPAIPPFAGRMGGNQDFVVDRTDPKNSKVLERVDPDAAP**CM**TLKEIFDLRGFLSV
DLWK**FAVLECIASMMNVFITCW**VTTTHPLSATTSPKGQAGVYGTVTFFSPTFGG**LTNLLLTPLLIYTFSPSSGGHI**
SPTITLATFFARIITFPR**MILYLAGQTLGGALAGFAM**HSAYGTREFTVGG**CH**IDTTMVSAKD**LVIEFFACLILI**
FLAFGVALDPRQAKVFGHAV**SPWLVG**VVLGIVTWGTA**FT**REGYIGASV**NP**AR**CF**GAYVASDFPTYHWIH**WVGPLA**
AAVAHGLVYFVDPLWKDPRAE

>**AQPG**_ATCC64974_111300 (5 transmembrane domains)

MIPETEKSGCREKPAHGIAFPFQTHPDGYQKTVKTDTEMPVWK**CL**ASIDMWRC**TL**E**CL**ASMMYTFMLTWVTIAP
TSKDRDDPGNLSYSSLNNDWVR**FLPTSIVNVCLLPLIIFT**FARSTGGYV**NPS**ITFAAYFLRRISLSR**AVMYIGG**
QVIGIVLAVWAVQEAYGSTGFDIG**CI**ISRGGSIRNAY**IAEVVSGFAMVVTVMYIAA**GRKSGVLFGDAM**SPWMVG**
IATEAAFWLSRLIWQGHGPASRQLI

- AQPs amino acid sequences used in classification

Accession number	Species	Predicted class
SPB42568.1 (AQPA)	<i>A. niger</i> ATCC64974	orthodox-AQP
SPB44895.1 (AQPB)	<i>A. niger</i> ATCC64974	Yfl054-like-AQGP
SPB44966.1 (AQPC)	<i>A. niger</i> ATCC64974	XIP
SPB47598.1 (AQPD)	<i>A. niger</i> ATCC64974	γ -AQGP
SPB49549.1 (AQPE)	<i>A. niger</i> ATCC64974	Yfl054-like-AQGP
SPB49917.1 (AQPF)	<i>A. niger</i> ATCC64974	XIP
SPB53530.1 (AQPG)	<i>A. niger</i> ATCC64974	-
CBF75100	<i>A. nidulans</i>	α -AQGP
EAW06528	<i>A. clavatus</i>	α -AQGP
EED48588	<i>A. flavus</i>	α -AQGP
BAE57020	<i>A. oryzae</i>	α -AQGP
EGU81740	<i>F. oxysporum</i>	α -AQGP
JQ585594	<i>L. bicolor</i>	β -AQGP
EFQ30640	<i>C. graminicola</i>	β -AQGP
GAA93674	<i>M. osmundae</i>	β -AQGP
XP658434	<i>A. nidulans</i>	γ -AQGP
EED45967	<i>A. flavus</i>	γ -AQGP
XP001400456	<i>A. niger</i> CBS513.88	γ -AQGP
GAA84320	<i>A. kawachii</i>	γ -AQGP
CAA38096	<i>S. cerevisiae</i>	FPS1-like-AQGP
XP453974	<i>K. lactis</i>	FPS1-like-AQGP
XP445318	<i>C. glabrata</i>	FPS1-like-AQGP
GAA2303	<i>S. cerevisiae</i>	Yfl054-like-AQGP
XP680887	<i>A. nidulans</i>	Yfl054-like-AQGP
EED52139	<i>A. flavus</i>	Yfl054-like-AQGP
XP001825721	<i>A. oryzae</i>	Yfl054-like-AQGP
CAK42703	<i>A. niger</i> CBS513.88	Yfl054-like-AQGP
XP001217233	<i>A. terreus</i>	Yfl054-like-AQGP

EGU87897	<i>F. oxysporum</i>	Yfl054-like-AQGP
GAA86900	<i>A. kawachii</i>	Yfl054-like-AQGP
EAW09088	<i>A. clavatus</i>	Yfl054-like-AQGP
EJP62256	<i>B. bassiana</i>	δ -AQGP
ELQ43205	<i>M. oryzae</i>	δ -AQGP
AFJ15556	<i>L. bicolor</i>	δ -AQGP
AGE95845	<i>E. cuniculi</i>	SIP-like
EEQ81370	<i>N. ceranae</i>	SIP-like
EIJ87245	<i>N. parisii</i>	SIP-like
XP001547129	<i>B. cinerea</i>	orthodox-AQP
ADC55259	<i>S. cerevisiae</i>	orthodox-AQP
EGU79346	<i>F. oxysporum</i>	orthodox-AQP
EAW13465	<i>A. clavatus</i>	orthodox-AQP
CBF7893	<i>A. nidulans</i>	orthodox-AQP
EED52312	<i>A. flavus</i>	orthodox-AQP
XP001211324	<i>A. terreus</i>	orthodox-AQP
EED52460	<i>A. flavus</i>	orthodox-AQP
XP001825978	<i>A. oryzae</i>	orthodox-AQP
XP001390456	<i>A. niger</i> CBS513.88	XIP
EED45369	<i>A. flavus</i>	XIP
XP00139648	<i>A. niger</i> CBS513.88	XIP
EGX52763	<i>A. oligospora</i>	XIP
EGU75229	<i>F. oxysporum</i>	XIP
