

Curriculum Vitae

A.C Houweling

Year	Institute
May 2010-	Clinical Geneticist, member of staff VUmc and AMC Co promotor/supervisor of 3 PhD students
June 2008	Invited speaker symposium hypertrophic cardiomyopathy
September 2007	Travel award 'bureau internationalisation VUmc' for attending the Keystone Heart Symposium 2008.
May 2007	Resident Clinical Genetics Vumc
December 2004- March 2007	Internships, University of Amsterdam
20 June 2006	Defence of the PhD thesis: Regulation of regionalized gene expression in the developing heart.
September 1999- December 2004	PhD student at the department of Anatomy and Embryology of the University of Amsterdam. <ul style="list-style-type: none"> - Cardiovascular Research Institute Amsterdam symposium poster award with the poster: 'The proximal <i>Nppa</i> promoter fragment is not sufficient to drive correct developmental expression' - Poster presentation Keystone Heart Symposium 'The proximal <i>Nppa</i> promoter fragment is not sufficient to drive correct developmental expression' (2004) - Attendance Weinstein Conference, Leiden (2004) - Poster presentation at the Keystone Heart Symposium 'Chamber formation in the chicken embryonic heart; Towards a functional analysis of <i>Irx1</i> and <i>Irx2</i>' (2002) -Instructor of human anatomy and embryology courses for medical students Certificates <ul style="list-style-type: none"> -Level 5B nuclear safety - Artikel 9 laboratory animal expertise
1995-1999	Medical Student, University of Amsterdam <ul style="list-style-type: none"> - Instructor at the department of Physiology at the University of Amsterdam (1997- 1999) - Member of the curriculum advisory committee (1997) - Medical Coordinator JOHO-student company (1997) - Certificate Emergency Medical Assistance (1997) - Board member of the medical student organization, MSV-Asklepios (1996)
1989-1995	VWO

Publications:

Patterning the embryonic heart: Identification of five mouse Iroquois homeobox genes in the developing heart. Christoffels VM, Keijser AGM, **Houweling AC**, Clout DEW, Moorman AFM. *Dev Biol* 2000; 224:263-274

Gene and cluster-specific expression of the Iroquois family members during mouse development. **Houweling AC**, Dildrop R, Peters T, Mummenhoff J, Moorman AFM, R  ther U, Christoffels VM. *Mech of Dev* 2001; 107:169-174.

Identificatie van een nieuwe homeobox transcriptiefactor in het hart. **Houweling AC**. *NTvG-S* 2001; 75-78.

Sensitive non-radioactive detection of mRNA in tissue sections: novel application of the whole-mount in situ hybridization protocol. Moorman AFM, **Houweling AC**, de Boer PAJ, Christoffels VM. *J Histochem Cytochem.* 2001;49:1-8.

Expression of *Irx6* during mouse development. Mummenhoff J, **Houweling AC**, Peters T, Christoffels VM, R  ther U. *Mech of Dev.* 2001;103:193-195.

The developmental pattern of ANF gene expression reveals a strict localization of cardiac chamber formation in chicken. **Houweling AC**, Somi S, van den Hoff MJ, Moorman AFM, Christoffels VM. *Anat Rec* 2002; 266:93-102.

Expression of *cVg1* mRNA during chicken cardiac development. Somi S, **Houweling AC**, Buffing AAM, Moorman AFM, van den Hoff MJB. *Anat Rec.* 2003;273A:603-608.

Comparative analysis of the natriuretic peptide precursor gene cluster in vertebrates reveals loss of ANF and retention of CNP-3 in chicken. **Houweling AC**, Somi S, Massink MPG, Groenen MA, Moorman AFM, Christoffels VM. *Dev Dyn.* 2005;233:1076-1082.

Expression and regulation of the atrial natriuretic factor encoding gene *Nppa* during development and disease. **Houweling AC**, van Borren MM, Moorman AFM, Christoffels VM. *Cardiovasc Res.* 2005;67:583-593.

Atrial and ventricular myosin heavy chain expression: strengths and limitations of the non-radioactive in situ hybridization. Somi S, Klein ATJ, **Houweling AC**, Ruijter JM, Buffing AAM, Moorman AFM, van den Hoff MJB. *J Histochem Cytochem.* 2006 Feb 6

Distinct regulation of developmental and heart disease-induced atrial natriuretic factor expression by two separate distal sequences. Horsthuis T, **Houweling AC**, Habets PE, de Lange FJ, el Azzouzi H, Clout DE, Moorman AF, Christoffels VM. *Circ Res.* 2008 Apr 11;102(7):849-59. Epub 2008 Feb 14.

Variable phenotypic manifestation of IRF6 mutations in the Van der Woude syndrome and popliteal pterygium syndrome: implications for genetic counseling.

Houweling AC, Gille JJ, Baart JA, van Hagen JM, Lachmeijer AM. *Clin Dysmorphol.* 2009 Oct;18(4):225-7

Prenatal detection of Noonan syndrome by mutation analysis of the PTPN11 and the KRAS genes.

Houweling AC, de Mooij YM, van der Burgt I, Yntema HG, Lachmeijer AM, Go AT. *Prenat Diagn.* 2010 Jan 28. [Epub ahead of print] No abstract available.

Identification of a large rearrangement in *CYLD* as a cause of familial cylindromatosis.

van den Ouweland AM, Elfferich P, Lamping R, van de Graaf R, van Veghel-Plandsoen MM, Franken SM, **Houweling AC**. *Fam Cancer.* 2011 Mar;10(1):127-32.

Arrhythmogenic right ventricular dysplasia/cardiomyopathy diagnostic task force criteria: impact of new task force criteria.

Cox MG, van der Smagt JJ, Noorman M, Wiesfeld AC, Volders PG, van Langen IM, Atsma DE, Dooijes D, **Houweling AC**, Loh P, Jordaens L, Arens Y, Cramer MJ, Doevendans PA, van Tintelen JP, Wilde AA, Hauer RN. *Circ Arrhythm Electrophysiol.* 2010 Apr 1;3(2):126-33. Epub 2010 Mar 9.

Familial multiple discoid fibromas: A look-alike of Birt-Hogg-Dube syndrome not linked to the *FLCN* locus.

Theo M. Starink, **Arjan C. Houweling**, Martijn B.A. van Doorn, Edward M. Leter, Elisabeth H. Jaspars, Jeroen A. van Moorselaar, Piet E. Postmus, Paul C. Johannesma, Jan Hein van Waewsberghe, Martijn H. Ploeger, Marieke T. Kramer, Johan J. P. Gille, Quinten, Waisfisz, and Fred H. Menko, accepted for publication *J. Am Acad Dermatology* 2011-03-08

Risk factors for sudden cardiac death and follow-up in a large nationwide cohort of predictively tested hypertrophic cardiomyopathy mutation carriers

Imke Christiaans^{1,2}, Irene M van Langen^{1,3}, Erwin Birnie⁴, Marcel MAM Mannens¹, Michelle Michels⁵, D Majoor-Krakauer⁶, J Peter van Tintelen³, Maarten P van den Berg⁷, Paul Volders⁸, Yvonne Arens⁹, DNA-lab AZM⁹, Douwe E Atsma¹⁰, Apollonia TJM Helderma-van den Enden^{9,11}, **Arjan Houweling**^{1,2}, Jasper J van der Smagt¹³, Carlo LM Marcelis¹⁴, Janneke Timmermans¹⁵, Gouke J Bonssel⁴, Arthur AM Wilde² Accepted for publication, European Heart Journal, 2011

Arrhythmogenic right ventricular dysplasia/cardiomyopathy: pathogenic desmosome mutations in index-patients predict outcome of family screening: Dutch arrhythmogenic right ventricular dysplasia/cardiomyopathy genotype-phenotype follow-up study.

Cox MG, van der Zwaag PA, van der Werf C, van der Smagt JJ, Noorman M, Bhuiyan ZA, Wiesfeld AC, Volders PG, van Langen IM, Atsma DE, Dooijes D, van den Wijngaard A, **Houweling AC**, Jongbloed JD, Jordaens L, Cramer MJ, Doevendans PA, de Bakker JM, Wilde AA, van Tintelen JP, Hauer RN. *Circulations* 2011 Jun 14;123(23):2690-700

Renal cancer and pneumothorax risk in Birt-Hogg-Dubé syndrome; an analysis of 115 FLCN mutation carriers from 35 BHD families.

Houweling AC, Gijezen LM, Jonker MA, van Doorn MB, Oldenburg RA, van Spaendonck-Zwarts KY, Leter EM, van Os TA, van Grieken NC, Jaspars EH, de Jong MM, Bongers EM, Johannesma PC, Postmus PE, van Moorselaar RJ, van Waesberghe JH, Starink TM, van Steensel MA, Gille JJ, Menko FH.

Source: Department of Clinical Genetics, VU University Medical Center, Amsterdam, The Netherlands. *Br J Cancer*. 2011 Dec 6;105(12):1912-9.

Multiple myocardial crypts on modified long-axis view are a specific finding in pre-hypertrophic HCM mutation carriers.

Brouwer WP, Germans T, Head MC, van der Velden J, Heymans MW, Christiaans I, **Houweling AC**, Wilde AA, van Rossum AC. *Eur Heart J Cardiovasc Imaging*. 2012 Apr;13(4):292-7.

A de novo FLCN mutation in a patient with spontaneous pneumothorax and renal cancer; a clinical and molecular evaluation.

Menko FH, Johannesma PC, van Moorselaar RJ, Reinhard R, van Waesberghe JH, Thunnissen E, **Houweling AC**, Leter EM, Waisfisz Q, van Doorn MB, Starink TM, Postmus PE, Coull BJ, van Steensel MA, Gille JJ.

Fam Cancer. 2013 Sep;12(3):373-9. doi: 10.1007/s10689-012-9593-8.

The value of DNA storage and pedigree analysis in rare diseases: a 17-year-old boy with X-linked lymphoproliferative disease (XLP) caused by a de novo SH2D1A mutation. Overwater E, Smulders Y, van der Burg M, Lombardi MP, Meijers-Heijboer HE, Kuijpers TW, **Houweling AC**. *Eur J Pediatr*. 2014 Dec;173(12):1695-8. doi: 10.1007/s00431-014-2313-7. Epub 2014 Apr 12.

Functional assessment of potential splice site variants in arrhythmogenic right ventricular dysplasia/cardiomyopathy.

Groeneweg JA, Ummels A, Mulder M, Bikker H, van der Smagt JJ, van Mil AM, Homfray T, Post JG, Elvan A, van der Heijden JF, **Houweling AC**, Jongbloed JD, Wilde AA, van Tintelen JP, Hauer RN, Dooijes D.

Heart Rhythm. 2014 Nov;11(11):2010-7. doi: 10.1016/j.hrthm.2014.07.041. Epub 2014 Jul 31.

The pathogenesis of pneumothorax in Birt-Hogg-Dubé syndrome: a hypothesis.

Johannesma PC, **Houweling AC**, van Waesberghe JH, van Moorselaar RJ, Starink TM, Menko FH, Postmus PE. *Respirology*. 2014 Nov;19(8):1248-50. doi: 10.1111/resp.12405.

Characteristics of pulmonary arterial hypertension in affected carriers of a mutation located in the cytoplasmic tail of BMPRII.

Girerd B, Coulet F, Jaïs X, Eyries M, Van Der Bruggen C, De Man F, **Houweling A**, Dorfmueller P, Savale L, Sitbon O, Vonk-Noordegraaf A, Soubrier F, Simonneau G, Humbert M, Montani D.

Impact of genotype on clinical course in arrhythmogenic right ventricular dysplasia/cardiomyopathy-associated mutation carriers.

Bhonsale A, Groeneweg JA, James CA, Dooijes D, Tichnell C, Jongbloed JD, Murray B, Te Riele AS, van den Berg MP, Bikker H, Atsma DE, de Groot NM, **Houweling AC**, van der Heijden JF, Russell SD, Doevendans PA, van Veen TA, Tandri H, Wilde AA, Judge DP, van Tintelen JP, Calkins H, Hauer RN. Eur Heart J. 2015 Jan 23. pii: ehu509. [Epub ahead of print] Review.

Are lung cysts in renal cell cancer (RCC) patients an indication for FLCN mutation analysis?

Johannesma PC, **Houweling AC**, Menko FH, van de Beek I, Reinhard R, Gille JJ, van Waesberghe JT, Thunnissen E, Starink TM, Postmus PE, van Moorselaar RJ. Fam Cancer. 2016 Apr;15(2):297-300. doi: 10.1007/s10689-015-9853-5.

Bone Morphogenetic Protein Receptor Type 2 Mutation in Pulmonary Arterial Hypertension: A View on the Right Ventricle.

van der Bruggen CE, Happé CM, Dorfmüller P, Trip P, Spruijt OA, Rol N, Hoevenaars FP, **Houweling AC**, Girerd B, Marcus JT, Mercier O, Humbert M, Handoko ML, van der Velden J, Vonk Noordegraaf A, Bogaard HJ, Goumans MJ, de Man FS. Circulation. 2016 May 3;133(18):1747-60. doi: 10.1161/CIRCULATIONAHA.115.020696. Epub 2016 Mar 16.

A case of pulmonary alveolar microlithiasis associated with a homozygous 195 kb deletion encompassing the entire SLC34A2 gene.

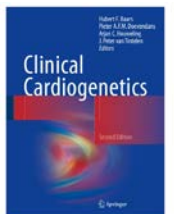
Stokman L, Nossent EJ, Grunberg K, Meijboom L, Yakicier MC, Voorhoeve E, **Houweling AC**. Clin Case Rep. 2016 Mar 11;4(4):412-5. doi: 10.1002/ccr3.532. eCollection 2016 Apr.

Two cases of RIT1 associated Noonan syndrome: Further delineation of the clinical phenotype and review of the literature.

Milosavljević D, Overwater E, Tamminga S, de Boer K, Elting MW, van Hoorn ME, Rinne T, **Houweling AC**. Am J Med Genet A. 2016 Jul;170(7):1874-80. doi: 10.1002/ajmg.a.37657. Epub 2016 Apr 25.

Editor for the second edition of the textbook **Clinical Cardiogenetics, 2016**

ISBN 978-3-319-44203-7, Springer and for the third edition, currently work in progress.



2nd ed. 2016. VIII, 405 p. 93 illus., 55 illus. in color.

Risk of spontaneous pneumothorax due to air travel and diving in patients with Birt-Hogg-Dubé syndrome.

Johannesma PC, van de Beek I, van der Wel JW, Paul MA, **Houweling AC**, Jonker MA, van Waesberghe JH, Reinhard R, Starink TM, van Moorselaar RJ, Menko FH, Postmus PE. Springerplus. 2016 Sep 7;5(1):1506. doi: 10.1186/s40064-016-3009-4.

The diagnostic yield of whole-exome sequencing targeting a gene panel for hearing impairment in The Netherlands.

Zazo Seco C, Westdorp M, Feenstra I, Pfundt R, Hehir-Kwa JY, Lelieveld SH, Castelein S, Gilissen C, de Wijs IJ, Admiraal RJ, Pennings RJ, Kunst HP, van de Kamp JM, Tamminga S, **Houweling AC**, Plomp AS, Maas SM, de Koning Gans PA, Kant SG, de Geus CM, Frints SG, Vanhoutte EK, van Dooren MF, van den Boogaard MH, Scheffer H, Nelen M, Kremer H, Hoefsloot L, Schraders M, Yntema HG. Eur J Hum Genet. 2016 Dec 21. doi: 10.1038/ejhg.2016.182. [Epub ahead of print]

Genetic determinants of risk in pulmonary arterial hypertension: international genome-wide association studies and meta-analysis.

Rhodes CJ, Batai K, Houweling AC,... et al.
Lancet Respir Med. 2018 Dec 5

Autosomal dominant Marfan syndrome caused by a previously reported recessive FBN1 variant.

Overwater E, Efrat R, Barge-Schaapveld DQCM, Lakeman P, Weiss MM, Maugeri A, van Tintelen JP, Houweling AC.
Mol Genet Genomic Med. 2018 Nov 28

Myotonic dystrophy presenting as severely dilated cardiomyopathy with out-of-hospital cardiac arrest.

Isrie M, Wong L, van Hagen JM, Houweling AC.
Neth Heart J. 2019 Jan;27(1):54-55

Loss-of-Function ABCC8 Mutations in Pulmonary Arterial Hypertension.

Bohnen MS, Ma L, Zhu N, Houweling AC, ... et al.
Circ Genom Precis Med. 2018 Oct;11(10)

De Novo Truncating Mutations in WASF1 Cause Intellectual Disability with Seizures.

Am J Hum Genet. 2018 Jul 5;103(1):144-153

Results of next-generation sequencing gene panel diagnostics including copy-number variation analysis in 810 patients suspected of heritable thoracic aortic disorders.

Overwater E, Marsili L, Baars MJH, Baas AF, van de Beek I, Dulfer E, van Hagen JM, Hilhorst-Hofstee Y, Kempers M, Krapels IP, Menke LA, Verhagen JMA, Yeung KK, Zwijnenburg PJG, Groenink M, van Rijn P, Weiss MM, Voorhoeve E, van Tintelen JP, **Houweling AC**, Maugeri A.
Hum Mutat. 2018 Sep;39(9):1173-1192

Identification of rare sequence variation underlying heritable pulmonary arterial hypertension.

Gräf S, Haimel M, Bleda M, **Houweling AC**,..., et al
Nat Commun. 2018 Apr 12;9(1):1416.

Iris Flocculi and Type B Aortic Dissection.

Overwater E, **Houweling AC**.
Ophthalmology. 2017 Nov;124(11):1711

NGS panel analysis in 24 ectopia lentis patients; a clinically relevant test with a high diagnostic yield.

Overwater E, Floor K, van Beek D, de Boer K, van Dijk T, Hilhorst-Hofstee Y, Hoogeboom AJM, van Kaam KJ, van de Kamp JM, Kempers M, Krapels IPC, Kroes HY, Loeys B, Salemink S, Stumpel CTRM, Verhoeven VJM, Wijnands-van den Berg E, Cobben JM, van Tintelen JP, Weiss MM, **Houweling AC**, Maugeri A.
Eur J Med Genet. 2017 Sep;60(9):465-473. doi: 10.1016/j.ejmg.2017.06.005. Epub 2017 Jun 19.

RESEARCH SUPPORT (OVER THE LAST 5 YEARS)

-Travel award 'bureau internationalisation VUmc' for attending the Keystone Heart Symposium €2000.
-A*STAR travel grant award for 1 year funding for a PhD student to work in Singapore for 1 year €60.000