



Amsterdam Neuroscience Annual Report 2016

 Amsterdam
Neuroscience

Colophon:

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Executive Summary:

- With 135 principal investigators in addition to faculty, residents, postdocs and including 416 PhD students the ensemble 'community' of the alliance institute Amsterdam Neuroscience includes 863 investigators.
- They acquired a total of > 40 M€ in conditional funding during 2016. This included one ITN Marie Curie grant, one VIDJ grant and five VENI grants. In addition, Amsterdam Neuroscience invested 2 M€ in Proof of Concept project, alliance and innovation projects.
- A total of 1211 refereed articles (including 113 with shared co-authorships between AMC-VUmc and/or VU/UvA) were published with 149 papers in the highest impact journals (impact factor ≥ 10) and another 295 with a solid impact factor ($\geq 5 < 10$)
- The nine research programs are all vital in their research output and research quality, despite differences in their historical trajectories.
- High-lights included a number of inaugural lectures, the Kickoff meeting of Amsterdam Neuroscience on October 6 (2016) and the Honorary Doctorate to Prof. Jaap Goudsmit on October 12 (2016)
- There was 1 Marie Curie ITN grant, 1 VIDJ grant and 5 VENI grants.
- In the period 2015-2016 three spinoff companies were launched by tenured principal investigators of VUmc and VU.

Word from the directors

The mission of Amsterdam Neuroscience is clear: to improve understanding of the human brain and nervous system in health and disease by executing integrated basic, translational and clinical research.

We do this by bringing together clinicians, faculty and staff in the Amsterdam area, and by doing research and giving clinical care amongst the best in the Netherlands and beyond. Our investigators target and organize their collaborations along nine translational research programs, each focused in specific brain and nervous system disease mechanisms but also on technology innovation and basic research. In doing so, we contribute to generating deep understanding of brain mechanisms at all levels of study, from molecular, to cellular studies, to circuitry and intact brain and behavior. From there the latest scientific insights are translated into novel diagnostics and interventions for neurodegenerative, neuro-immunological and neuropsychiatric disorders.

Here you find the first annual report. We followed the SEP-evaluation protocol of the VSNU, with the note that for funding categorization we used NFU-criteria. The facts and figures in this annual report are a benchmark for the coming years.

Amsterdam Neuroscience is a high-profile network research organization; the core being the collaboration between relevant departments of the two academic medical centers and both universities in Amsterdam. The organization is aware that it needs to focus on a limited number of experimental approaches, brain functions and disease mechanisms in order to exceed. The projects within the nine programs should strengthen the link between different disciplines and urge for collaboration between different partners (irrespective of their location).

Amsterdam Neuroscience bridges the gap between Basic Neuroscience and Translational Medicine by both gaining deep understanding of the many brain disease mechanisms, techniques and various disciplines and research methods used nowadays in Neuroscience, and by taken advantage of our proven affinity for brain disease and clinical innovation in the field of Neurology and Psychiatry. We do this by initiating new research strategies and proof-of-concept studies for radically new approaches in the early diagnosis of brain diseases, the elucidation of the underlying mechanisms, and thus providing new routes towards therapy.

Arjen Brussaard – director

Diederik van de Beek - co-director

Highlights:

- ✓ Christel Middeldorp receives ITN Marie Curie grant as coordinator
- ✓ NWO awards Michel van den Oever with a VIDI grant
- ✓ VENI grants for five promising young investigators of Amsterdam Neuroscience
- ✓ “The power of repetition” - Inaugural lecture by prof. Odile van den Heuvel
- ✓ Jaap Goudsmit awarded with a Honorary Doctorate
- ✓ Ingo Willuhn elected as member for the Young Academy of Europe (after already acquiring a Vidi and a ERC starting grant during the last years)
- ✓ Klaus Linkenkaer-Hansen c.s. built on after 2015 foundation of spin-off company, NBT Analytics specialized in CRO services of EEG recordings for clinical trial, see <http://www.nbt-analytics.com/>
- ✓ Elga de Vries c.s. built on after 2015 foundation of spin-off company of VUmc, Brendinn Therapeutics, a company with proprietary intervention for BBB regulation in MS and other disease, see <http://brendinn.com/>
- ✓ Marloes Groot c.s. spins off a company, Tritos Diagnostics, around the discovery of the so-called ‘bioptic needle’ and is developing a hand-held device *applying rapid multi-photon technology to generate real time images at cellular resolution of brain tumors and epileptic seizure tissues*; see <https://www.tritosdiagnostics.com>
- ✓ In 2016 Amsterdam Neuroscience invested a total of > 2 M€ in alliance- and innovation-projects

Management Team

Arjen Brussaard / Scientific Director & Chair

Diederik van de Beek / co-director

Philip Scheltens / Member

Guus Smit / Member

Jeroen Geurts / Member

Cyriel Pennartz / Member

Damiaan Denys / Member (not shown)



People



Brain Imaging



Complex Trait Genetics



Neurotechnology



Brain Mechanisms



Neurodegeneration



Neuroinfection
& inflammation



Neurovascular
Disorders



Compulsivity,
Impulsivity
& Attention



Mood,
Anxiety
& Psychosis

Program leaders



Dick Veltman



Liesbeth Reneman



Danielle Posthuma



Hanne Meijers



Johannes de Boer



Rick Schuurman



Matthijs Verhage



Marten Smidt



Wiesje van der Flier



Rob de Bie



Joep Killestein



Diederik van de Beek



Peter Vandertop



Yvo Roos



Odile van den Heuvel



Wim van den Brink



Brenda Penninx



Sabine Spijker

Taskforce members



Fleur van Rootselaar



Bart van Berckel



Matthijs Verhage



Huibert Mansvelder



Wytse Wadman



Marjo van der Knaap



Eric Reits



Charlotte Teunissen



Paul Lucassen



Elga de Vries



Ivo van Schaik



Gert Kwakkel



Charles Majoie



Taco de Vries



Conrado Bosman



Lieuwe de Haan

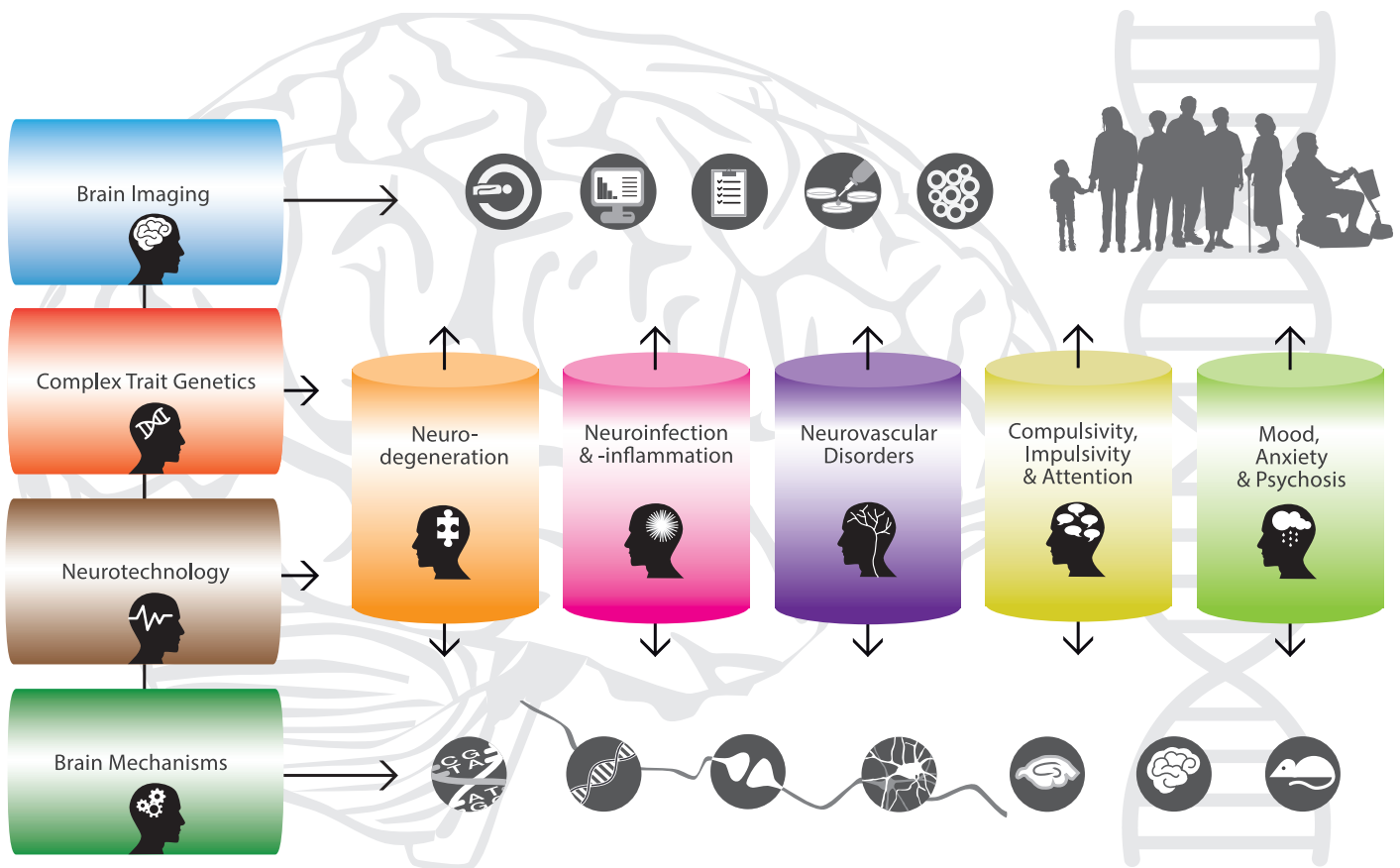


Harm Krugers

Research

Amsterdam Neuroscience aims to strengthen collaborations between investigators by focusing its research strategy on nine research programs. Five research programs focusing on specific brain and nervous system disease mechanisms are complemented by four programs focusing on innovation, that will provide proof of concept for causal relationships in brain and nervous system function mechanisms. In Amsterdam Neuroscience innovation takes place at all levels of study, from molecular to cellular studies, to circuitry and intact brain and behavior, both at the individual as well as population level.

The nine research programs outlined below act as steering committees with each over fifteen scientists and Principal Investigators (PIs). Shared infrastructure and translational efforts will be realized. Graduate training and residents will be guided with integrative feedback within each of the research programs.



Infographics of the research organization of Amsterdam. Research programs are abbreviated as follows: Brain Imaging (bi); Complex Trait Genetics (ctg); Neurotechnology (nt) Brain Mechanisms (bm); Neurodegeneration (nd); Neuroinfection & -inflammation (nii); Compulsivity, Impulsivity & Attention (cia) and Mood, Anxiety & Psychosis (map).

Research staff in total

Total	863.2		449.1	
	persons		fte - research	% - research
Subtotals	493.5	1e geldstroom	243.1	54.1%
	319.7	2e geldstroom	177.7	39.6%
	25.0	3e geldstroom	16.9	3.8%
	25.0	4e geldstroom	11.4	2.5%

PhD students				
Total	415.9	persons		
Subtotals	192.0	1e geldstroom*		
	197.0	2e geldstroom		
	11.0	3e geldstroom		
	16.0	4e geldstroom		

PhD students 1e jaars				
Total	139.0	(alle geldstromen)		

NFU definitie:

- **Eerste geldstroom: personeels aanstelling op onvoorwaardelijke (en andere interne) financiering universiteit/ziekenhuis*
- *Tweede geldstroom: voorwaardelijke financiële bijdrage uit intermediaire publieke middelen (ZONMW, NWO, KNAW en EU)*
- *Derde geldstroom: private middelen non profit: collectebusfondsen, landelijk opererende fondsen met een wetenschappelijke raad die de projecten beoordeelt.*
- *Vierde geldstroom: private middelen for profit: commerciële subsidiëring en contractresearch.*

Research staff per research program

bi	ctg	nt	bm	nd	nii	ndis	cia	map
89.0	50.0	48.0	201.0	137.0	119.0	40.0	100.0	96.0

	bi	ctg	nt	bm	nd	nii	ndis	cia	map
	persons								
1e geldstroom	56.0	22.0	36.0	116.0	53.0	60.0	28.0	70.0	62.0
2e geldstroom	27.0	27.0	7.0	75.0	61.0	56.0	11.0	30.0	33.0
3e geldstroom	1.0	1.0	3.0	1.0	19.0	0.0	0.0	0.0	0.0
4e geldstroom	5.0	0.0	2.0	9.0	4.0	3.0	1.0	0.0	1.0

bi	ctg	nt	bm	nd	nii	ndis	cia	map
19.7	30.7	18.0	78.5	112.9	53.7	19.0	36.6	56.5

	bi	ctg	nt	bm	nd	nii	ndis	cia	map
	fte - research								
1e geldstroom	21.9	12.3	5.0	60.4	34.6	26.9	14.1	36.1	24.3
2e geldstroom	12.0	16.7	3.5	41.4	40.7	30.3	7.4	15.0	11.5
3e geldstroom	0.8	0.8	0.0	2.4	13.0	0.0	0.0	0.0	0.0
4e geldstroom	2.3	0.0	0.8	3.3	1.6	2.2	0.4	0.0	0.2

Note:

In the ratio-conversion from personnel to the time spent on research, we used the following (HRM-SAP instructed) guidelines: Full professor: 0.4 fte; Strategic professor: 0.1 fte; Associate professor: 0.4 fte; Assistant professor: 0.4; Investigator: 0.8 fte; Post doc: 0.8 fte; PhD student: 0.75 fte and a lecturer: 0 fte.

Funding in total

	Total
Total funding	€ 83.978.650
1e geldstroom*	€ 43.450.000
2e geldstroom	€ 26.347.126
3e geldstroom	€ 4.041.767
4e geldstroom	€ 10.139.757

NFU definitie:

- *Eerste geldstroom: Personeels-aanstellingen op interne financiering universiteit/ziekenhuis. Ook weergegeven zijn de eerste geldstromen (i.e. 1.450.000 €) welke geïnvesteerd werden in het kader van alliantie-onderzoeksgelden. De overige eerste geldstroom bedraagt bij benadering ~ 42 M€.
- Tweede geldstroom: voorwaardelijke financiële bijdrage uit intermediaire publieke middelen (ZONMW, NWO, KNAW en EU)
- Derde geldstroom: private middelen non profit: collectebusfondsen, landelijk opererende fondsen met een wetenschappelijke raad die de projecten beoordeelt.
- Vierde geldstroom: private middelen for profit: commerciële subsidiëring en contractresearch

Research funding per research program

	bi	ctg	nt	bm
Total funding	€ 1.827.855	€ 2.854.634	€ 1.023.783	€ 9.989.266
1e geldstroom*	€ 100.000	€ 320.000	€ 50.000	€ 480.000
2e geldstroom	€ 545.167	€ 2.023.000	€ 546.875	€ 7.997.389
3e geldstroom	€ 350.000	€ 203.688	€ -	€ 511.000
4e geldstroom	€ 871.688	€ -	€ 426.908	€ 760.877

	nd	nii	ndis	cia	map
Total funding	€ 8.967.952	€ 4.369.816	€ 1.233.638	€ 4.571.232	€ 6.773.131
1e geldstroom*	€ 150.000	€ 100.000	€ 50.000	€ 50.000	€ 50.000
2e geldstroom	€ 2.004.728	€ 1.665.719	€ 1.183.638	€ 4.421.232	€ 4.983.839
3e geldstroom	€ 2.193.672	€ 1.161.000	€ -	€ -	€ 50.000
4e geldstroom	€ 4.719.552	€ 1.493.097	€ -	€ 100.000	€ 1.689.292

NFU definitie:

- **Eerste geldstroom: alleen weergegeven zijn zgn alliantie gelden*
- *Tweede geldstroom: voorwaardelijke financiële bijdrage uit intermediaire publieke middelen (ZONMW, NWO, KNAW en EU)*
- *Derde geldstroom: private middelen non profit: collectebusfondsen, landelijk opererende fondsen met een wetenschappelijke raad die de projecten beoordeelt.*
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Research output & quality in total

	Total
Refereed articles	1211
Non-refereed articles (1)	12
Books	0
Book chapters	10
PhD theses	105
Conference papers	0
Professional publications (2)	35
Publications aimed at the general public (3)	5
Other research output (4)	13
Total publications	1391
High impact - refereed articles (impact factor ≥ 10)	149
Solid impact - refereed articles (impact factor $> 5 < 10$)	295

Notes on the distinct categories (according to the latest SEP protocol):

- 1) Articles in journals that are non-refereed, yet deemed important for the field
- 2) Publications aimed at professionals in the public and private sector (professionele publicaties), including patents and annotations (e.g. law)
- 3) Also known as "populariserende artikelen"
- 4) Other types of research output (if applicable), such as abstracts, patents, editorships, inaugural lectures, designs and prototypes (e.g. engineering) and media appearances

Research output & quality per research program

	bi	ctg	nt	bm	nd	nii	ndis	cia	map
Refereed articles	210	127	57	207	200	182	148	133	207
Non-refereed articles (1)	2	4	1	2	3	0	0	2	3
Books	0	0	0	0	0	0	0	0	0
Book chapters	0	0	0	6	2	0	0	0	2
PhD theses	7	5	2	36	19	13	11	10	11
Conference papers	0	0	0	0	0	0	0	0	0
Professional publications (2)	1	0	9	4	14	2	2	2	7
Publications aimed at the general public (3)	0	0	0	0	2	0	0	1	2
Other research output (4)	4	1	0	1	9	5	0	1	0
Total publications	224	137	69	256	247	202	161	149	232
High impact - refereed articles (impact factor ≥ 10)	15	36	9	30	22	20	9	6	38
Solid impact - refereed articles (impact factor $> 5 < 10$)	51	30	17	45	60	40	43	25	61

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